

CLAIMS

1. A method of inhibiting neuronal cell death, comprising:

administering to a subject in need thereof an effective amount of an isolated molecule comprising an antibody variable region which specifically binds to a neuronal marker (NM) protein selected from the group consisting of: ESTsMm 40262; Mus musculus calcium binding protein 1; M musculus ribonucleic acid binding protein S1 Rnps1; ESTsMm 10622; contactin 3Mm 2968; Mus musculus glycoprotein 38; neurochondrinMm 43445; no match8; Mus musculus crystallin beta A4; S100 protein beta polypeptide neuralMm 829; Mm 37346; chromogranin BMm 1339; no match111; glial fibrillary acidic proteinMm 1239; Sugano mouse brain mnecb MNCb 4842 5; Mus musculus Ly6 neurotoxin 1; ESTsMm 22801; Human Chromosome 7 clone RP11 297N5; proteolipid protein myelin Mm 1268; ESTs Weakly similar to F2 alpha prostoglandin regulatory protein M musculus Mm 29860; ESTsMm 28098; Mus musculus fibroblast growth factor 13; glutamate receptor ionotropic NMDA1 zeta 1 Mm 3292; amyloid beta A4 precursor protein binding family A member 2Mm 4657; ESTsMm 41808; Mus musculus zinc finger transcription factor Kaiso mRNA complete cdsMm 100832; R norvegicus mRNA for pro alpha 1 collagen type III; heat shock protein 25 kDa 2 cardiovascular Mm 103612; Mus musculus hypothetical protein I54; transcription factor 4Mm 4269; ESTs Highly similar to ATP SYNTHASE DELTA CHAIN MITOCHONDRIAL PRECURSOR Rattus norvegicus Mm 22514; M musculus vacuolar proton translocating ATPase 100 kDa subunit isoform a1 I; selenoprotein P plasma 1Mm 22699; solute carrier family 2 facilitated glucose transporter member 3Mm 3726; ESTsMm 33880; ESTsMm 34740; ESTsMm 29832; cathepsin DMm 2147; secretogranin IIIMm 2386; Mouse mRNA for neural cell adhesion molecu; Mus musculus glutathione S transferase mu 1; no match98; R norvegicus microtubule associated protein 1A MAP1A; M musculus selenoprotein P; Mus musculus secreted phosphoprotein 1; ESTsMm 27363; ESTs Moderately similar to CALPONIN ACIDIC ISOFORM Rattus norvegicus Mm 22171; collapsin response mediator protein 1Mm 22695; insulin like growth factor binding protein 5Mm 578; ESTs Highly similar to neuroglycan C

precursor R norvegicus Mm 38496; Mus musculus melastatin 1 Mlsn1; ceruloplasminMm 13787; ESTs Weakly similar to delta 6 fatty acid desaturase M musculus Mm 30158; ESTsMm 43499; Rattus norvegicus CD44 protein; M musculus G protein coupled receptor 37; UI M BH3 aun e 05 0 UI s1 NIH BMAP M S4; M musculus secreted acidic cysteine rich glycoprotein; nuclear receptor co repressor 1Mm 88061; ribosomal protein mitochondrial S7Mm 29902; Mm 104779; tropomodulin 2Mm 44216; M musculus insulin like growth factor binding protein 5; Mus musculus secreted acidic cysteine rich gly; Homo sapiens KIAA1077 protein; stearyl Coenzyme A desaturase 2Mm 298; M musculus dickkopf homolog 3 Dkk 3; Mus musculus transketolase Tkt; L0283F10 3 Mouse Newborn Ovary cDNA Library; Mus musculus neuron specific gene family member 2; prostaglandin D2 synthase 21 kDa brain Mm 1008; Mus neural cell adhesion molecule NCAM 140; Mouse brain specific small RNA; Mus musculus protein phosphatase 2; farnesyl diphosphate farnesyl transferase 1Mm 3204; Mmusculus proteolipid M6B isoform TMD psi M6B; Mouse brain neurofilament L; brain protein E46Mm 4098; Rattus norvegicus Spinophilin mRNA; ESTsMm 5258; ESTsMm 17436; Mouse heat shock protein hsp84; no match71; Mm 29846; R norvegicus n chimaerin; ESTsMm 10641; Mus musculus protein tyrosine phosphatase; Mm 100761; H sapiens transmembrane 4 superfamily member 7; H sapiens chromosome 3 clone RP11 19E8 map 3p; ESTsMm 26680; UI M BH3 avk f 09 0 UI s1 NIH BMAP M S4; ESTs Moderately similar to PRAJA1 M musculus Mm 41711; Homo sapiens RNA binding protein BRUNOL4; actin beta cytoplasmicMm 103618; NCK associated protein 1Mm 25203; Mus musculus transcription factor 4 Tcf4; ESTsMm 39985; Mouse mRNA for OSF 1; ESTsMm 27030; Mouse cysteine rich glycoprotein; ESTsMm 71533; H sapiens membrane glycoprotein M6; Human hBOIT brain type organic ion transporter; dickkopf homolog 3 Xenopus laevis Mm 55143; no match23; DNA segment Chr 19 Wayne State University 55 expressedMm 29835; Mus musculus calpain 4; ESTs Highly similar to EXCITATORY AMINO ACID TRANSPORTER 1 M musculus Mm 33356; Ca2 dependent activator protein for secretionMm 5058; oxidative stress inducedMm 9846; adducin 1 alpha Mm 29052; ESTs Weakly similar to ORF YKR092c S cerevisiae Mm 24356; Mus musculus membrane protein TMS 2 mRNA complete cdsMm 29344; R norvegicus neurodegeneration associated protein 1; glutamine synthetaseMm 2338; ESTsMm 24254; Mus musculus clusterin; Mouse beta tubulin gene M beta 4 3 end; Mus musculus vimentin; Homo sapiens mRNA cDNA

DKFZp586N1922; ESTsMm 27467; Mus musculus mRNA for profilin II pfn2 gene Mm 20399; protein L isoaspartate D aspartate O methyltransferase 1Mm 25293; ESTsMm 41819; ESTs Weakly similar to p190 B M musculus Mm 13835; anti oxidant protein 2Mm 6587; Mus musculus sulfated glycoprotein 2 isoform 2; ESTs Highly similar to zygini R norvegicus Mm 5264; calmodulinMm 2648; and Homo sapiens membrane glycoprotein M6 , whereby neuronal cell death is inhibited.

2. The method of claim 1 wherein the subject has retinal cell degeneration.
3. The method of claim 1 wherein the subject has Alzheimer's disease.
4. The method of claim 1 wherein the subject has diabetic retinopathy.
5. The method of claim 1 wherein the subject has Huntington's disease.
6. The method of claim 1 wherein the subject has spinal cord injury.
7. The method of claim 1 wherein the subject has Parkinson's disease.
8. The method of claim 1 wherein the subject has glaucoma.
9. The method of claim 1 wherein the subject has age-related macular degeneration.

10. A method of preventing neuronal cell death in a mammal, comprising:

administering to the mammal a nucleic acid molecule comprising a coding sequence for a neuronal marker (NM) protein selected from the group consisting of: NM Mus musculus retinal S antigen; Mus musculus neural retina leucine zipper gene; M musculus photoreceptor specific protein PSP G145; IMAGE 4507893 5; Mus musculus domesticus phosducin; IMAGE 4507284 5; Danio rerio brain type fatty acid binding protein; M musculus X linked juvenile retinoschisis protein; M musculus guanine nucleotide binding protein beta 1 Gnb1; Mus musculus TPA regulated locus; Mouse nuclear protein mdm 1; IMAGE 4511806 5; M musculus male germ cell associated kinase; heat shock protein 60 kDaMm 1777; no match17; NCI CGAP BC3 Mus musculus cDNA clone IMAGE 3976794; no homol6; Homo sapiens CGI 45 protein; ESTsMm 44103; Mouse opsin MOPS; IMAGE 4225062 5; Mm 100212; H sapiens fer fps fes related tyrosine kinase phosphoprotein NCP94 FER; IMAGE 4505626 5 602393946F1 NIH MGC 94; solute carrier family 12 member 2Mm 4168; Mus musculus BUB2 like protein 1 HBLP1 mRNA complete cdsMm 104771; hemoglobin Y beta like embryonic chainMm 35830; erythrocyte protein band 4 1Mm 30038; no match55; Mus musculus MYLE protein mRNA

complete cdsMm 41091; RIKEN full length enriched adult male hypothalamus musculus cDNA clone A230050E13; NCI CGAP Mam6 Mus IMAGE 3500058; Mus musculus mRNA for GTP binding protein drg2 gene Mm 41803; Homo sapiens mRNA for KIAA1549 protein; Mus musculus karyopherin importin alpha 2 Kpna2; UI M BZ1 bk v b 01 0 UI 3; no match B; ESTsMm 939; Mus musculus cDNA sequence AF244542; IMAGE 1348390 5; solute carrier family 30 zinc transporter member 3Mm 1396; no match110; Mus musculus homeodomain protein crx; promininMm 6250; no homol3; IMAGE 1279184 5; Human microfibril associated glycoprotein 4; Mm 70462; no match A; Rattus sp mRNA for BHF 1; ribosomal protein S24Mm 16775; Stratagene mouse Tcell 937311 IMAGE 1002041; NCI CGAP Kid14 Mus IMAGE 4236354 5; R norvegicus retinoblastoma binding protein 9; Mus musculus exostoses multiple 1 Ext1; selectin endothelial cell ligandMm 488; ESTs Weakly similar to HYPOTHETICAL 16 1 KD PROTEIN IN SEC17 QCR1 INTERGENIC REGION Saccharomyces cerevisiae Mm 27114; ESTs Highly similar to KIAA0824 protein H sapiens Mm 34579; Mus musculus ribosomal protein L10A Rpl10a; R norvegicus ribonucleoprotein F; clone 1110007F23; no match38; M musculus Srp20 gene; homeodomain interacting protein kinase 2Mm 20934; FSHD region gene 1Mm 67; UI M BH3 ari c 10 0 UI s1 NIH BMAP M S4; Homo sapiens CED 6 protein CED 6; Mus musculus RIKEN clone 0610009E22; RAB18 member RAS oncogene familyMm 22660; no match5; Mus musculus prominin Prom; ribosomal protein L12Mm 70127; ESTs Highly similar to ELONGATION FACTOR 1 DELTA Homo sapiens Mm 21086; ESTs Highly similar to HYPOTHETICAL 37 2 KD PROTEIN C12C2 09C IN CHROMOSOME I Schizosaccharomyces pombe Mm 21383; clone 3021401C12; M musculus very long chain acyl CoA dehydrogenase; vitronectinMm 3667; ESTs Weakly similar to LIV 1 protein H sapiens Mm 41214; Mus musculus dopamine receptor 4; no match7; ATPase H transporting lysosomal vacuolar proton pump noncatalytic accessory protein 1 110 160 kDa Mm 20869; Rattus norvegicus partial mRNA for CRM1 protein; eukaryotic translation elongation factor 1 alpha 1Mm 16317; Human karyopherin beta2 importin; ESTs Moderately similar to hypothetical protein H sapiens Mm 22878; Homo sapiens PAC clone RP4 687K1; UI M AO1 aeh e 11 0 UI r1 NIH BMAP MPG N; high mobility group protein 14Mm 2756; ESTsMm 31374; R norvegicus aryl hydrocarbon interacting protein like 1; UI M CG0p bmu h 08 0 UI s1 NIH BMAP Ret4 S2; RAB10 member RAS oncogene familyMm 9455; Mus musculus early

development regulator 2; no match83; Mus musculus topoisomerase DNA II beta; alpha tubulin; Homo sapiens MTA1 L1; retinitis pigmentosa GTPase regulator interacting protein 1 Mm 21662; Mus musculus FXYD dom containing ion transport regulator 5; Mus musculus cytochrome P450 3A25 CYP3A25 mRNA complete cdsMm 26993; IMAGE 4505626 5; RNA polymerase II transcriptional coactivatorMm 966; ESTs Highly similar to CAAX prenyl protease H sapiens Mm 34399; Soares mammary gland NbMMG IMAGE 1347586; clone 2700067D09; ESTs Weakly similar to define not available 5901802 D melanogaster Mm 35127; torsin family 1 member AMm 29151; Mm 23086; M musculus brain cyclic nucleotide gated K; Mus musculus N myc downstream regulated 1; Homo sapiens splicing factor 3b subunit 3; Mus musculus mRNA for Lim homeodomain protein Islet1Mm 42242; Mouse mRNA for syntaxin 3D 1; Mus musculus chromosome 7 clone 19K5; ES18 proteinMm 23296; ESTs Highly similar to KIAA0729 protein H sapiens Mm 13148; ESTsMm 33949; Rat transcription factor RZR beta gene; ESTs Moderately similar to hypothetical protein H sapiens Mm 30235; Homo sapiens KIAA0009 gene product; no match X; ESTs Moderately similar to MYOSIN LIGHT CHAIN KINASE Dictyostelium discoideum Mm 1881; serum glucocorticoid regulated kinaseMm 28405; ESTs Weakly similar to cappuccino D melanogaster Mm 41762; regulator of G protein signaling 9Mm 38548; ESTsMm 34351; ESTsMm 32460; Mm 44404; ESTsMm 37515; Mus musculus cytochrome P450 2f2 Cyp2f2; Finkel Biskis Reilly murine sarcoma virus FBR MuSV ubiquitously expressed fox derived Mm 4890; guanylate cyclase activator 1a retina Mm 16224; human CRX control; adducin 2 beta Mm 104155; mouse CRX control; NRL control; Mus musculus ELOVL4; Mus musculus N myc downstream regulated 3; lactate dehydrogenase 1 A chainMm 26504; ESTs Moderately similar to stromelysin PDGF responsive element binding protein transcription factor M musculus Mm 38372; ESTsMm 11285; M musculus chr 10 clone RP21 39C4; ESTs Highly similar to 40 KD PEPTIDYL PROLYL CIS TRANS ISOMERASE Homo sapiens Mm 30242; NIH BMAP Ret4 S2 Mus UI M CG0p big e 08 0 UI 3; Soares mammary gland NMLMG IMAGE 3467149; glycosylphosphatidylinositol 1 homolog human Mm 6354; Rattus norvegicus NMDA receptor subunit NR2; ESTsMm 33788; Mus musculus hexokinase 1 Hk1; inosine 5 phosphate dehydrogenase 2Mm 6065; N myc downstream regulated 3Mm 36775; no match V; villin 2Mm 4551; Rattus norvegicus TM6P1 TM6P1; Mus musculus mRNA for heterogeneous nuclear ribonucleoprotein HMm 21740; ESTsMm 103333;

Mus musculus retinal taurine transporter; Mus musculus poly rC binding protein; ESTs Weakly similar to nuclear poly C binding protein M musculus Mm 29707; ESTs Weakly similar to similar to 1 acyl glycerol 3 phosphate acyltransferases C elegans Mm 24117; Mm 27013; pre B cell leukemia transcription factor 3Mm 7331; ESTsMm 21299; Mus musculus kinectin 1; Mus musculus drebrin A mRNA complete cdsMm 104044; H3087H01 5 NIA Mouse 15K cDNA Clone Set; SAC483 Mouse e14 5 developing pituitary gland; cloneE130113K08; Mus musculus major histocompatibility locus class II region Fas binding protein Daxx DAXX gene partial cds Bing1 BING1 tapasin tapasin RalGDS like factor RLF KE2 KE2 BING4 BING4 beta1 3 galactosyl transferase beta1 3 galactosylMm 20926; Mus musculus aquaporin 1; acyl Coenzyme A dehydrogenase very long chainMm 18630; Mouse proprotein convertase 4; M musculus activating transcription factor 4 Atf4; guanine nucleotide binding protein beta 5Mm 4702; phosducin control; ESTsMm 38578; Barstead bowel MPLRB9 IMAGE 1095982; M musculus stromal cell derived factor recep; ESTs Weakly similar to E04F6 2 gene product C elegans Mm 18889; IMAGE 963149 5; syntaxin binding protein 1 Mm 3129; solute carrier family 16 monocarboxylic acid transporters member 1Mm 9086; ESTs Highly similar to TRICARBOXYLATE TRANSPORT PROTEIN PRECURSOR Rattus norvegicus Mm 22679; Bcl2 likeMm 3882; Soares mouse p3NMF19 5 IMAGE 493296; Mus musculus beta galactosidase complex; H sapiens ADP ribosylation factor binding protein GGA2; Mm 31266; IMAGE 560050 5; Mus musculus DXHXS6673E protein DXHXS6673E mRNA complete cdsMm 23458; M musculus mRNA for hair keratin mHb6; Mus musculus thyroglobulin; ESTs Moderately similar to KIAA0956 protein H sapiens Mm 11428; H3050H05 3 NIA Mouse 15K cDNA Clone Set; ESTs Moderately similar to signal recognition particle 54K protein M musculus Mm 32508; Mouse PSD 95 SAP90A; ESTsMm 29308; alkaline phosphatase 2 liverMm 1265; Homo sapiens 12 seeders BAC RP11 19E18; ESTsMm 41269; ESTsMm 86724; Homo sapiens 12q13 1 PAC RPC11 228P16; serine threonine kinase receptor associated proteinMm 22584; UI M BZ0 axl a 11 0 UI s1 NIH BMAP MHI2; Mus musculus poly rC binding protein 2; IMAGE 4503171 5; ESTsMm 35430; activating transcription factor 4Mm 641; Mouse serine threonine phosphatase 2C; GAPDH control; Human mRNA for KIAA0299; ESTs Weakly similar to proline rich protein M musculus Mm 41665; megakaryocyte associated tyrosine kinaseMm 2918; homer neuronal immediate early gene 2Mm 228; peroxisomal

farnesylated protein Mm 29198; blank; zinc finger protein 238 Mm 27962; ESTs Highly similar to PHENYLALANYL TRNA SYNTHETASE BETA CHAIN CYTOPLASMIC *Saccharomyces cerevisiae* Mm 27403; Rat microtubule associated protein 2 MAP2; timeless homolog *Drosophila* Mm 6458; kinectin 1 Mm 3110; phosphatidylinositol membrane associated Mm 1860; *R. norvegicus* CDP diacylglycerol synthase; *Homo sapiens* DKFZp434A132; *Mus musculus* hematopoietic zinc finger; mitogen activated protein kinase kinase 7 Mm 3906; H3110G03 3 NIA Mouse 15K cDNA; ESTs Highly similar to HYPOTHETICAL 47 9 KD PROTEIN B0303 3 IN CHROMOSOME III *Caenorhabditis elegans* Mm 30147; ESTs Highly similar to CELL GROWTH REGULATING NUCLEOLAR PROTEIN M *Mus musculus* Mm 28560; no match W; Mouse endogenous murine leukemia virus polytropic provirus DNA; clone 1110013A05; aryl hydrocarbon receptor Mm 4452; peroxisome proliferator activated receptor alpha Mm 1373; *Mus musculus* LAG protein Lag *Rattus* NMDA receptor glutamate binding subunit; *Mus musculus* syntaxin binding protein 1; *Mus musculus* MAP kinase phosphatase 6; *Rattus norvegicus* retina specific protein PAL; no match 33; *Mus musculus* myc box dependent interacting pro; Murine leukemia virus *env1* envelope protein; cytochrome c oxidase subunit VIIa 3 Mm 2151; proteasome prosome macropain subunit alpha type 3 Mm 1007; *Homo sapiens* mRNA cDNA DKFZp434N1615; *Mus musculus* TCR beta locus; ESTs Weakly similar to LOK M *Mus musculus* Mm 74661; small inducible cytokine subfamily A member 22 Mm 12895; ESTs Mm 23682; no match I; no match H; high mobility group protein I isoform C Mm 3953; protein kinase cAMP dependent catalytic alpha Mm 22479; *Mus musculus* phosphatidylinositol membrane associated; no match G; Mouse heparin binding epidermal growth factor like; *Homo sapiens* cDNA DKFZp586B0924; Mouse magnesium dependent protein; ESTs Weakly similar to ZW10 interactor Zwint H *sapiens* Mm 38994; ESTs Mm 30480; H *sapiens* ADP ribosylation factor GTPase activating protein 1; *Mus* elongation of very long chain fatty acids; Mouse Y box binding protein 1 DNA binding MSY 1; *Homo sapiens* KIAA0249 gene product; *Mus musculus* Ran binding protein 2; *Mus musculus* histidine decarboxylase cluster; *Homo sapiens* cDNA FLJ21612 *fis* clone COL07355; UI M BH2 3 aqc g 10 0 UI 5; *Rattus norvegicus* APP binding protein 1; *Mus musculus* beta site APP cleaving enzyme; DNA methyltransferase cytosine 5 Mm 7814; no match 66; ESTs Weakly similar to Lpi2p S *cerevisiae* Mm 21859; *R. norvegicus* phosphatidylinositol synthase; ribonuclease L 2 5

oligoisoadenylate synthetase dependent inhibitor Mm 5831; Mm 104074; H sapiens protein phosphatase 2A regulatory subunit B; H3147A11 5 NIA Mouse 15K cDNA Clone Set; Mus musculus Y box transcription factor; Mouse gene for basigin; Homo sapiens mRNA for FLJ00042 protein; R norvegicus nup155 nucleoporin 155kD; tubby like protein 1 Mm 42102; R norvegicus RNA binding protein SiahBP; UI M BZ0 axj h 06 0 UI 3; and Mus musculus pyruvate kinase 3, whereby neuronal cell death in the mammal is inhibited or prevented.

11. A method of preventing neuronal cell death in a mammal, comprising:

administering to the mammal a purified human neuronal marker (NM) protein selected from the group consisting of: NM Mus musculus retinal S antigen; Mus musculus neural retina leucine zipper gene; M musculus photoreceptor specific protein PSP G145; IMAGE 4507893 5; Mus musculus domesticus phosducin; IMAGE 4507284 5; Danio rerio brain type fatty acid binding protein; M musculus X linked juvenile retinoschisis protein; M musculus guanine nucleotide binding protein beta 1 Gnb1; Mus musculus TPA regulated locus; Mouse nuclear protein mdm 1; IMAGE 4511806 5; M musculus male germ cell associated kinase; heat shock protein 60 kDa Mm 1777; no match17; NCI CGAP BC3 Mus musculus cDNA clone IMAGE 3976794; no homol6; Homo sapiens CGI 45 protein; ESTs Mm 44103; Mouse opsin MOPS; IMAGE 4225062 5; Mm 100212; H sapiens fer fps fes related tyrosine kinase phosphoprotein NCP94 FER; IMAGE 4505626 5 602393946F1 NIH MGC 94; solute carrier family 12 member 2 Mm 4168; Mus musculus BUB2 like protein 1 HBLP1 mRNA complete cds Mm 104771; hemoglobin Y beta like embryonic chain Mm 35830; erythrocyte protein band 4.1 Mm 30038; no match55; Mus musculus MYLE protein mRNA complete cds Mm 41091; RIKEN full length enriched adult male hypothalamus musculus cDNA clone A230050E13; NCI CGAP Mam6 Mus IMAGE 3500058; Mus musculus mRNA for GTP binding protein drg2 gene Mm 41803; Homo sapiens mRNA for KIAA1549 protein; Mus musculus karyopherin importin alpha 2 Kpna2; UI M BZ1 bk v b 01 0 UI 3; no match B; ESTs Mm 939; Mus musculus cDNA sequence AF244542; IMAGE 1348390 5; solute carrier family 30 zinc transporter member 3 Mm 1396; no match110; Mus musculus homeodomain protein crx; prominin Mm 6250; no homol3; IMAGE 1279184 5; Human microfibril associated glycoprotein 4; Mm 70462; no match A; Rattus sp mRNA for BHF 1; ribosomal protein S24 Mm 16775; Stratagene mouse Tcell 937311 IMAGE 1002041; NCI CGAP Kid14 Mus IMAGE 4236354 5; R norvegicus retinoblastoma binding protein 9; Mus

musculus exostoses multiple 1 Ext1; selectin endothelial cell ligand Mm 488; ESTs Weakly similar to HYPOTHETICAL 16 1 KD PROTEIN IN SEC17 QCR1 INTERGENIC REGION *Saccharomyces cerevisiae* Mm 27114; ESTs Highly similar to KIAA0824 protein H sapiens Mm 34579; *Mus musculus* ribosomal protein L10A Rpl10a; *R norvegicus* ribonucleoprotein F; clone 1110007F23; no match38; *M musculus* Srp20 gene; homeodomain interacting protein kinase 2 Mm 20934; FSHD region gene 1 Mm 67; UI M BH3 ari c 10 0 UI s1 NIH BMAP M S4; Homo sapiens CED 6 protein CED 6; *Mus musculus* RIKEN clone 0610009E22; RAB18 member RAS oncogene family Mm 22660; no match5; *Mus musculus* prominin Prom; ribosomal protein L12 Mm 70127; ESTs Highly similar to ELONGATION FACTOR 1 DELTA Homo sapiens Mm 21086; ESTs Highly similar to HYPOTHETICAL 37 2 KD PROTEIN C12C2 09C IN CHROMOSOME I *Schizosaccharomyces pombe* Mm 21383; clone 3021401C12; *M musculus* very long chain acyl CoA dehydrogenase; vitronectin Mm 3667; ESTs Weakly similar to LIV 1 protein H sapiens Mm 41214; *Mus musculus* dopamine receptor 4; no match7; ATPase H transporting lysosomal vacuolar proton pump noncatalytic accessory protein 1 110 160 kDa Mm 20869; *Rattus norvegicus* partial mRNA for CRM1 protein; eukaryotic translation elongation factor 1 alpha 1 Mm 16317; Human karyopherin beta2 importin; ESTs Moderately similar to hypothetical protein H sapiens Mm 22878; Homo sapiens PAC clone RP4 687K1; UI M AO1 aeh e 11 0 UI r1 NIH BMAP MPG N; high mobility group protein 14 Mm 2756; ESTs Mm 31374; *R norvegicus* aryl hydrocarbon interacting protein like 1; UI M CG0p bmu h 08 0 UI s1 NIH BMAP Ret4 S2; RAB10 member RAS oncogene family Mm 9455; *Mus musculus* early development regulator 2; no match83; *Mus musculus* topoisomerase DNA II beta; alpha tubulin; Homo sapiens MTA1 L1; retinitis pigmentosa GTPase regulator interacting protein 1 Mm 21662; *Mus musculus* FXFD domain containing ion transport regulator 5; *Mus musculus* cytochrome P450 3A25 CYP3A25 mRNA complete cds Mm 26993; IMAGE 4505626 5; RNA polymerase II transcriptional coactivator Mm 966; ESTs Highly similar to CAAX prenyl protease H sapiens Mm 34399; Soares mammary gland NbMMG IMAGE 1347586; clone 2700067D09; ESTs Weakly similar to defline not available 5901802 *D melanogaster* Mm 35127; torsin family 1 member A Mm 29151; Mm 23086; *M musculus* brain cyclic nucleotide gated K; *Mus musculus* N myc downstream regulated 1; Homo sapiens splicing factor 3b subunit 3; *Mus musculus* mRNA for Lim homeodomain protein Islet1 Mm 42242; Mouse mRNA for syntaxin 3D 1; *Mus*

musculus chromosome 7 clone 19K5; ES18 proteinMm 23296; ESTs Highly similar to KIAA0729 protein H sapiens Mm 13148; ESTsMm 33949; Rat transcription factor RZR beta gene; ESTs Moderately similar to hypothetical protein H sapiens Mm 30235; Homo sapiens KIAA0009 gene product; no match X; ESTs Moderately similar to MYOSIN LIGHT CHAIN KINASE Dictyostelium discoideum Mm 1881; serum glucocorticoid regulated kinaseMm 28405; ESTs Weakly similar to cappuccino D melanogaster Mm 41762; regulator of G protein signaling 9Mm 38548; ESTsMm 34351; ESTsMm 32460; Mm 44404; ESTsMm 37515; Mus musculus cytochrome P450 2f2 Cyp2f2; Finkel Biskis Reilly murine sarcoma virus FBR MuSV ubiquitously expressed fox derived Mm 4890; guanylate cyclase activator 1a retina Mm 16224; human CRX control; adducin 2 beta Mm 104155; mouse CRX control; NRL control; Mus musculus ELOVL4; Mus musculus N myc downstream regulated 3; lactate dehydrogenase 1 A chainMm 26504; ESTs Moderately similar to stromelysin PDGF responsive element binding protein transcription factor M musculus Mm 38372; ESTsMm 11285; M musculus chr 10 clone RP21 39C4; ESTs Highly similar to 40 KD PEPTIDYL PROLYL CIS TRANS ISOMERASE Homo sapiens Mm 30242; NIH BMAP Ret4 S2 Mus UI M CG0p big e 08 0 UI 3; Soares mammary gland NMLMG IMAGE 3467149; glycosylphosphatidylinositol 1 homolog human Mm 6354; Rattus norvegicus NMDA receptor subunit NR2; ESTsMm 33788; Mus musculus hexokinase 1 Hk1; inosine 5 phosphate dehydrogenase 2Mm 6065; N myc downstream regulated 3Mm 36775; no match V; villin 2Mm 4551; Rattus norvegicus TM6P1 TM6P1; Mus musculus mRNA for heterogeneous nuclear ribonucleoprotein HMm 21740; ESTsMm 103333; Mus musculus retinal taurine transporter; Mus musculus poly rC binding protein; ESTs Weakly similar to nuclear poly C binding protein M musculus Mm 29707; ESTs Weakly similar to similar to 1 acyl glycerol 3 phosphate acyltransferases C elegans Mm 24117; Mm 27013; pre B cell leukemia transcription factor 3Mm 7331; ESTsMm 21299; Mus musculus kinectin 1; Mus musculus drebrin A mRNA complete cdsMm 104044; H3087H01 5 NIA Mouse 15K cDNA Clone Set; SAC483 Mouse e14 5 developing pituitary gland; cloneE130113K08; Mus musculus major histocompatibility locus class II region Fas binding protein Daxx DAXX gene partial cds Bing1 BING1 tapasin tapasin RalGDS like factor RLF KE2 KE2 BING4 BING4 beta1 3 galactosyl transferase beta1 3 galactosylMm 20926; Mus musculus aquaporin 1; acyl Coenzyme A dehydrogenase very long chainMm 18630; Mouse proprotein convertase 4; M musculus

activating transcription factor 4 Atf4; guanine nucleotide binding protein beta 5Mm 4702; phosducin control; ESTsMm 38578; Barstead bowel MPLRB9 IMAGE 1095982; M musculus stromal cell derived factor recep; ESTs Weakly similar to E04F6 2 gene product C elegans Mm 18889; IMAGE 963149 5; syntaxin binding protein 1 Mm 3129; solute carrier family 16 monocarboxylic acid transporters member 1Mm 9086; ESTs Highly similar to TRICARBOXYLATE TRANSPORT PROTEIN PRECURSOR Rattus norvegicus Mm 22679; Bcl2 likeMm 3882; Soares mouse p3NMF19 5 IMAGE 493296; Mus musculus beta galactosidase complex; H sapiens ADP ribosylation factor binding protein GGA2; Mm 31266; IMAGE 560050 5; Mus musculus DXHXS6673E protein DXHXS6673E mRNA complete cdsMm 23458; M musculus mRNA for hair keratin mHb6; Mus musculus thyroglobulin; ESTs Moderately similar to KIAA0956 protein H sapiens Mm 11428; H3050H05 3 NIA Mouse 15K cDNA Clone Set; ESTs Moderately similar to signal recognition particle 54K protein M musculus Mm 32508; Mouse PSD 95 SAP90A; ESTsMm 29308; alkaline phosphatase 2 liverMm 1265; Homo sapiens 12 seeders BAC RP11 19E18; ESTsMm 41269; ESTsMm 86724; Homo sapiens 12q13 1 PAC RPC11 228P16; serine threonine kinase receptor associated proteinMm 22584; UI M BZ0 axl a 11 0 UI s1 NIH BMAP MHI2; Mus musculus poly rC binding protein 2; IMAGE 4503171 5; ESTsMm 35430; activating transcription factor 4Mm 641; Mouse serine threonine phosphatase 2C; GAPDH control; Human mRNA for KIAA0299; ESTs Weakly similar to proline rich protein M musculus Mm 41665; megakaryocyte associated tyrosine kinaseMm 2918; homer neuronal immediate early gene 2Mm 228; peroxisomal farnesylated proteinMm 29198; blank; zinc finger protein 238Mm 27962; ESTs Highly similar to PHENYLALANYL TRNA SYNTHETASE BETA CHAIN CYTOPLASMIC Saccharomyces cerevisiae Mm 27403; Rat microtubule associated protein 2 MAP2; timeless homolog Drosophila Mm 6458; kinectin 1Mm 3110; phosphatidylinositol membrane associatedMm 1860; R norvegicus CDP diacylglycerol synthase; Homo sapiens DKFZp434A132; Mus musculus hematopoietic zinc finger; mitogen activated protein kinase kinase 7Mm 3906; H3110G03 3 NIA Mouse 15K cDNA; ESTs Highly similar to HYPOTHETICAL 47 9 KD PROTEIN B0303 3 IN CHROMOSOME III Caenorhabditis elegans Mm 30147; ESTs Highly similar to CELL GROWTH REGULATING NUCLEOLAR PROTEIN M musculus Mm 28560; no match W; Mouse endogenous murine leukemia virus polytropic provirus DNA;

clone1110013A05; aryl hydrocarbon receptorMm 4452; peroxisome proliferator activated receptor alphaMm 1373; Mus musculus LAG protein Lag Rattus NMDA receptor glutamate binding subunit; Mus musculus syntaxin binding protein 1; Mus musculus MAP kinase phosphatase 6; Rattus norvegicus retina specific protein PAL; no match33; Mus musculus myc box dependent interacting pro; Murine leukemia virus erv1 envelope protein; cytochrome c oxidase subunit VIIa 3Mm 2151; proteasome prosome macropain subunit alpha type 3Mm 1007; Homo sapiens mRNA cDNA DKFZp434N1615; Mus musculus TCR beta locus; ESTs Weakly similar to LOK M musculus Mm 74661; small inducible cytokine subfamily A member 22Mm 12895; ESTsMm 23682; no match I; no match H; high mobility group protein I isoform CMm 3953; protein kinase cAMP dependent catalytic alphaMm 22479; Mus musculus phosphatidylinositol membrane associated; no match G; Mouse heparin binding epidermal growth factor like; Homo sapiens cDNA DKFZp586B0924; Mouse magnesium dependent protein; ESTs Weakly similar to ZW10 interactor Zwint H sapiens Mm 38994; ESTsMm 30480; H sapiens ADP ribosylation factor GTPase activating protein 1; Mus elongation of very long chain fatty acids; Mouse Y box binding protein 1 DNA binding MSY 1; Homo sapiens KIAA0249 gene product; Mus musculus Ran binding protein 2; Mus musculus histidine decarboxylase cluster; Homo sapiens cDNA FLJ21612 fis clone COL07355; UI M BH2 3 aqc g 10 0 UI 5; Rattus norvegicus APP binding protein 1; Mus musculus beta site APP cleaving enzyme; DNA methyltransferase cytosine 5 Mm 7814; no match66; ESTs Weakly similar to Lpi2p S cerevisiae Mm 21859; R norvegicus phosphatidylinositol synthase; ribonuclease L 2 5 oligoisoadenylate synthetase dependent inhibitorMm 5831; Mm 104074; H sapiens protein phosphatase 2A regulatory subunit B; H3147A11 5 NIA Mouse 15K cDNA Clone Set; Mus musculus Y box transcription factor; Mouse gene for basigin; Homo sapiens mRNA for FLJ00042 protein; R norvegicus nup155 nucleoporin 155kD; tubby like protein 1 Mm 42102; R norvegicus RNA binding protein SiahBP; UI M BZ0 axj h 06 0 UI 3; and Mus musculus pyruvate kinase 3, whereby neuronal cell death in the mammal is inhibited or prevented.

12. The method of claim 10 or 11 wherein the subject has retinal cell degeneration.
13. The method of claim 10 or 11 wherein the subject has Alzheimer's disease.

14. The method of claim 10 or 11 wherein the subject has diabetic retinopathy.
15. The method of claim 10 or 11 wherein the subject has Huntington's disease.
16. The method of claim 10 or 11 wherein the subject has spinal cord injury.
17. The method of claim 10 or 11 wherein the subject has Parkinson's disease.
18. The method of claim 10 or 11 wherein the subject has glaucoma.
19. The method of claim 10 or 11 wherein the subject has age-related macular degeneration.
20. A method of identifying regions of neuronal cell death in a patient, comprising:

administering to a patient a molecule comprising an antibody variable region which specifically binds to a neuronal marker (NM) protein selected from the group consisting of: ESTsMm 40262; Mus musculus calcium binding protein 1; M musculus ribonucleic acid binding protein S1 Rnps1; ESTsMm 10622; contactin 3Mm 2968; Mus musculus glycoprotein 38; neurochondrinMm 43445; no match8; Mus musculus crystallin beta A4; S100 protein beta polypeptide neuralMm 829; Mm 37346; chromogranin BMm 1339; no match111; glial fibrillary acidic proteinMm 1239; Sugano mouse brain mnCb MNCb 4842 5; Mus musculus Ly6 neurotoxin 1; ESTsMm 22801; Human Chromosome 7 clone RP11 297N5; proteolipid protein myelin Mm 1268; ESTs Weakly similar to F2 alpha prostoglandin regulatory protein M musculus Mm 29860; ESTsMm 28098; Mus musculus fibroblast growth factor 13; glutamate receptor ionotropic NMDA1 zeta 1 Mm 3292; amyloid beta A4 precursor protein binding family A member 2Mm 4657; ESTsMm 41808; Mus musculus zinc finger transcription factor Kaiso mRNA complete cdsMm 100832; R norvegicus mRNA for pro alpha 1 collagen type III; heat shock protein 25 kDa 2 cardiovascular Mm 103612; Mus musculus hypothetical protein I54; transcription factor 4Mm 4269; ESTs Highly similar to ATP SYNTHASE DELTA CHAIN MITOCHONDRIAL PRECURSOR Rattus norvegicus Mm 22514; M musculus vacuolar proton translocating ATPase 100 kDa subunit isoform a1 I; selenoprotein P plasma 1Mm 22699; solute carrier family 2 facilitated glucose transporter member 3Mm 3726; ESTsMm 33880; ESTsMm 34740; ESTsMm 29832; cathepsin DMm 2147; secretogranin IIIMm 2386; Mouse mRNA for neural cell adhesion molecu; Mus musculus glutathione S transferase mu 1; no match98; R

norvegicus microtubule associated protein 1A MAP1A; M musculus selenoprotein P; Mus
 musculus secreted phosphoprotein 1; ESTsMm 27363; ESTs Moderately similar to CALPONIN
 ACIDIC ISOFORM Rattus norvegicus Mm 22171; collapsin response mediator protein 1Mm
 22695; insulin like growth factor binding protein 5Mm 578; ESTs Highly similar to
 neuroglycan C precursor R norvegicus Mm 38496; Mus musculus melastatin 1 Mlsn1;
 ceruloplasminMm 13787; ESTs Weakly similar to delta 6 fatty acid desaturase M musculus
 Mm 30158; ESTsMm 43499; Rattus norvegicus CD44 protein; M musculus G protein coupled
 receptor 37; UI M BH3 aun e 05 0 UI s1 NIH BMAP M S4; M musculus secreted acidic cysteine
 rich glycoprotein; nuclear receptor co repressor 1Mm 88061; ribosomal protein mitochondrial
 S7Mm 29902; Mm 104779; tropomodulin 2Mm 44216; M musculus insulin like growth factor
 binding protein 5; Mus musculus secreted acidic cysteine rich gly; Homo sapiens KIAA1077
 protein; stearyl Coenzyme A desaturase 2Mm 298; M musculus dickkopf homolog 3 Dkk 3;
 Mus musculus transketolase Tkt; L0283F10 3 Mouse Newborn Ovary cDNA Library; Mus
 musculus neuron specific gene family member 2; prostaglandin D2 synthase 21 kDa brain Mm
 1008; Mus neural cell adhesion molecule NCAM 140; Mouse brain specific small RNA; Mus
 musculus protein phosphatase 2; farnesyl diphosphate farnesyl transferase 1Mm 3204;
 Mmusculus proteolipid M6B isoform TMD psi M6B; Mouse brain neurofilament L; brain
 protein E46Mm 4098; Rattus norvegicus Spinophilin mRNA; ESTsMm 5258; ESTsMm 17436;
 Mouse heat shock protein hsp84; no match71; Mm 29846; R norvegicus n chimaerin; ESTsMm
 10641; Mus musculus protein tyrosine phosphatase; Mm 100761; H sapiens transmembrane 4
 superfamily member 7; H sapiens chromosome 3 clone RP11 19E8 map 3p; ESTsMm 26680;
 UI M BH3 avk f 09 0 UI s1 NIH BMAP M S4; ESTs Moderately similar to PRAJA1 M
 musculus Mm 41711; Homo sapiens RNA binding protein BRUNOL4; actin beta
 cytoplasmicMm 103618; NCK associated protein 1Mm 25203; Mus musculus transcription
 factor 4 Tcf4; ESTsMm 39985; Mouse mRNA for OSF 1; ESTsMm 27030; Mouse cysteine
 rich glycoprotein; ESTsMm 71533; H sapiens membrane glycoprotein M6; Human hBOIT brain
 type organic ion transporter; dickkopf homolog 3 Xenopus laevis Mm 55143; no match23;
 DNA segment Chr 19 Wayne State University 55 expressedMm 29835; Mus musculus calpain
 4; ESTs Highly similar to EXCITATORY AMINO ACID TRANSPORTER 1 M musculus Mm
 33356; Ca2 dependent activator protein for secretionMm 5058; oxidative stress inducedMm

9846; adducin 1 alpha Mm 29052; ESTs Weakly similar to ORF YKR092c S cerevisiae Mm 24356; Mus musculus membrane protein TMS 2 mRNA complete cdsMm 29344; R norvegicus neurodegeneration associated protein 1; glutamine synthetaseMm 2338; ESTsMm 24254; Mus musculus clusterin; Mouse beta tubulin gene M beta 4 3 end; Mus musculus vimentin; Homo sapiens mRNA cDNA DKFZp586N1922; ESTsMm 27467; Mus musculus mRNA for profilin II pfn2 gene Mm 20399; protein L isoaspartate D aspartate O methyltransferase 1Mm 25293; ESTsMm 41819; ESTs Weakly similar to p190 B M musculus Mm 13835; anti oxidant protein 2Mm 6587; Mus musculus sulfated glycoprotein 2 isoform 2; ESTs Highly similar to zyginI R norvegicus Mm 5264; calmodulinMm 2648; and Homo sapiens membrane glycoprotein M6, wherein the molecule is bound to a detectable moiety; and

detecting the detectable moiety in the patient, thereby identifying regions of neuronal cell death.

21. The method of claim 20 wherein the subject has retinal cell degeneration.

22. The method of claim 20 wherein the subject has Alzheimer's disease.

23. The method of claim 20 wherein the subject has diabetic retinopathy.

24. The method of claim 20 wherein the subject has Huntington's disease.

25. The method of claim 20 wherein the subject has spinal cord injury.

26. The method of claim 20 wherein the subject has Parkinson's disease.

27. The method of claim 20 wherein the subject has glaucoma.

28. The method of claim 20 wherein the subject has age-related macular degeneration.

29. A method of screening for neuronal cell death in a patient, comprising:

contacting a body fluid collected from the patient with a molecule comprising an antibody variable region which specifically binds to a neuronal marker (NM) protein selected from the group consisting of: ESTsMm 40262; Mus musculus calcium binding protein 1; M musculus ribonucleic acid binding protein S1 Rnps1; ESTsMm 10622; contactin 3Mm 2968; Mus musculus glycoprotein 38; neurochondrinMm 43445; no match8; Mus musculus crystallin beta A4; S100 protein beta polypeptide neuralMm 829; Mm 37346; chromogranin BMm 1339; no match111; glial fibrillary acidic proteinMm 1239; Sugano mouse brain mncb MNCb 4842 5; Mus musculus Ly6 neurotoxin 1; ESTsMm 22801; Human Chromosome 7 clone RP11 297N5;

proteolipid protein myelin Mm 1268; ESTs Weakly similar to F2 alpha prostoglandin regulatory protein M musculus Mm 29860; ESTsMm 28098; Mus musculus fibroblast growth factor 13; glutamate receptor ionotropic NMDA1 zeta 1 Mm 3292; amyloid beta A4 precursor protein binding family A member 2Mm 4657; ESTsMm 41808; Mus musculus zinc finger transcription factor Kaiso mRNA complete cdsMm 100832; R norvegicus mRNA for pro alpha 1 collagen type III; heat shock protein 25 kDa 2 cardiovascular Mm 103612; Mus musculus hypothetical protein I54; transcription factor 4Mm 4269; ESTs Highly similar to ATP SYNTHASE DELTA CHAIN MITOCHONDRIAL PRECURSOR Rattus norvegicus Mm 22514; M musculus vacuolar proton translocating ATPase 100 kDa subunit isoform a1 I; selenoprotein P plasma 1Mm 22699; solute carrier family 2 facilitated glucose transporter member 3Mm 3726; ESTsMm 33880; ESTsMm 34740; ESTsMm 29832; cathepsin DMm 2147; secretogranin IIIMm 2386; Mouse mRNA for neural cell adhesion molecu; Mus musculus glutathione S transferase mu 1; no match98; R norvegicus microtubule associated protein 1A MAP1A; M musculus selenoprotein P; Mus musculus secreted phosphoprotein 1; ESTsMm 27363; ESTs Moderately similar to CALPONIN ACIDIC ISOFORM Rattus norvegicus Mm 22171; collapsin response mediator protein 1Mm 22695; insulin like growth factor binding protein 5Mm 578; ESTs Highly similar to neuroglycan C precursor R norvegicus Mm 38496; Mus musculus melastatin 1 Mln1; ceruloplasminMm 13787; ESTs Weakly similar to delta 6 fatty acid desaturase M musculus Mm 30158; ESTsMm 43499; Rattus norvegicus CD44 protein; M musculus G protein coupled receptor 37; UI M BH3 aun e 05 0 UI s1 NIH BMAP M S4; M musculus secreted acidic cysteine rich glycoprotein; nuclear receptor co repressor 1Mm 88061; ribosomal protein mitochondrial S7Mm 29902; Mm 104779; tropomodulin 2Mm 44216; M musculus insulin like growth factor binding protein 5; Mus musculus secreted acidic cysteine rich gly; Homo sapiens KIAA1077 protein; stearyl Coenzyme A desaturase 2Mm 298; M musculus dickkopf homolog 3 Dkk 3; Mus musculus transketolase Tkt; L0283F10 3 Mouse Newborn Ovary cDNA Library; Mus musculus neuron specific gene family member 2; prostaglandin D2 synthase 21 kDa brain Mm 1008; Mus neural cell adhesion molecule NCAM 140; Mouse brain specific small RNA; Mus musculus protein phosphatase 2; farnesyl diphosphate farnesyl transferase 1Mm 3204; Mmusculus proteolipid M6B isoform TMD psi M6B; Mouse brain neurofilament L; brain protein E46Mm 4098; Rattus norvegicus Spinophilin

mRNA; ESTsMm 5258; ESTsMm 17436; Mouse heat shock protein hsp84; no match71; Mm 29846; R norvegicus n chimaerin; ESTsMm 10641; Mus musculus protein tyrosine phosphatase; Mm 100761; H sapiens transmembrane 4 superfamily member 7; H sapiens chromosome 3 clone RP11 19E8 map 3p; ESTsMm 26680; UI M BH3 avk f 09 0 UI s1 NIH BMAP M S4; ESTs Moderately similar to PRAJA1 M musculus Mm 41711; Homo sapiens RNA binding protein BRUNOL4; actin beta cytoplasmicMm 103618; NCK associated protein 1Mm 25203; Mus musculus transcription factor 4 Tcf4; ESTsMm 39985; Mouse mRNA for OSF 1; ESTsMm 27030; Mouse cysteine rich glycoprotein; ESTsMm 71533; H sapiens membrane glycoprotein M6; Human hBOIT brain type organic ion transporter; dickkopf homolog 3 Xenopus laevis Mm 55143; no match23; DNA segment Chr 19 Wayne State University 55 expressedMm 29835; Mus musculus calpain 4; ESTs Highly similar to EXCITATORY AMINO ACID TRANSPORTER 1 M musculus Mm 33356; Ca2 dependent activator protein for secretionMm 5058; oxidative stress inducedMm 9846; adducin 1 alpha Mm 29052; ESTs Weakly similar to ORF YKR092c S cerevisiae Mm 24356; Mus musculus membrane protein TMS 2 mRNA complete cdsMm 29344; R norvegicus neurodegeneration associated protein 1; glutamine synthetaseMm 2338; ESTsMm 24254; Mus musculus clusterin; Mouse beta tubulin gene M beta 4 3 end; Mus musculus vimentin; Homo sapiens mRNA cDNA DKFZp586N1922; ESTsMm 27467; Mus musculus mRNA for profilin II pfn2 gene Mm 20399; protein L isoaspartate D aspartate O methyltransferase 1Mm 25293; ESTsMm 41819; ESTs Weakly similar to p190 B M musculus Mm 13835; anti oxidant protein 2Mm 6587; Mus musculus sulfated glycoprotein 2 isoform 2; ESTs Highly similar to zyginI R norvegicus Mm 5264; calmodulinMm 2648; and Homo sapiens membrane glycoprotein M6, wherein detection of cross-reactive material in the body fluid with the molecule indicates neuronal cell death in the patient.

30. A method of promoting neuronal cell death in a patient, comprising:
 administering to a patient in need of neuronal cell death a neuronal marker (NM) protein selected from the group consisting of: ESTsMm 40262; Mus musculus calcium binding protein 1; M musculus ribonucleic acid binding protein S1 Rnps1; ESTsMm 10622; contactin 3Mm 2968; Mus musculus glycoprotein 38; neurochondrinMm 43445; no match8; Mus musculus crystallin beta A4; S100 protein beta polypeptide neuralMm 829; Mm 37346; chromogranin BMm 1339; no match111; glial fibrillary acidic proteinMm 1239; Sugano mouse

brain mncb MNCb 4842 5; Mus musculus Ly6 neurotoxin 1; ESTsMm 22801; Human Chromosome 7 clone RP11 297N5; proteolipid protein myelin Mm 1268; ESTs Weakly similar to F2 alpha prostoglandin regulatory protein M musculus Mm 29860; ESTsMm 28098; Mus musculus fibroblast growth factor 13; glutamate receptor ionotropic NMDA1 zeta 1 Mm 3292; amyloid beta A4 precursor protein binding family A member 2Mm 4657; ESTsMm 41808; Mus musculus zinc finger transcription factor Kaiso mRNA complete cdsMm 100832; R norvegicus mRNA for pro alpha 1 collagen type III; heat shock protein 25 kDa 2 cardiovascular Mm 103612; Mus musculus hypothetical protein I54; transcription factor 4Mm 4269; ESTs Highly similar to ATP SYNTHASE DELTA CHAIN MITOCHONDRIAL PRECURSOR Rattus norvegicus Mm 22514; M musculus vacuolar proton translocating ATPase 100 kDa subunit isoform a1 I; selenoprotein P plasma 1Mm 22699; solute carrier family 2 facilitated glucose transporter member 3Mm 3726; ESTsMm 33880; ESTsMm 34740; ESTsMm 29832; cathepsin DMm 2147; secretogranin IIIMm 2386; Mouse mRNA for neural cell adhesion molecu; Mus musculus glutathione S transferase mu 1; no match98; R norvegicus microtubule associated protein 1A MAP1A; M musculus selenoprotein P; Mus musculus secreted phosphoprotein 1; ESTsMm 27363; ESTs Moderately similar to CALPONIN ACIDIC ISOFORM Rattus norvegicus Mm 22171; collapsin response mediator protein 1Mm 22695; insulin like growth factor binding protein 5Mm 578; ESTs Highly similar to neuroglycan C precursor R norvegicus Mm 38496; Mus musculus melastatin 1 Mlsn1; ceruloplasminMm 13787; ESTs Weakly similar to delta 6 fatty acid desaturase M musculus Mm 30158; ESTsMm 43499; Rattus norvegicus CD44 protein; M musculus G protein coupled receptor 37; UI M BH3 aun e 05 0 UI s1 NIH BMAP M S4; M musculus secreted acidic cysteine rich glycoprotein; nuclear receptor co repressor 1Mm 88061; ribosomal protein mitochondrial S7Mm 29902; Mm 104779; tropomodulin 2Mm 44216; M musculus insulin like growth factor binding protein 5; Mus musculus secreted acidic cysteine rich gly; Homo sapiens KIAA1077 protein; stearyl Coenzyme A desaturase 2Mm 298; M musculus dickkopf homolog 3 Dkk 3; Mus musculus transketolase Tkt; L0283F10 3 Mouse Newborn Ovary cDNA Library; Mus musculus neuron specific gene family member 2; prostaglandin D2 synthase 21 kDa brain Mm 1008; Mus neural cell adhesion molecule NCAM 140; Mouse brain specific small RNA; Mus musculus protein phosphatase 2; farnesyl diphosphate farnesyl transferase 1Mm 3204; Mmusculus proteolipid

M6B isoform TMD psi M6B; Mouse brain neurofilament L; brain protein E46Mm 4098; *Rattus norvegicus* Spinophilin mRNA; ESTsMm 5258; ESTsMm 17436; Mouse heat shock protein hsp84; no match71; Mm 29846; *R norvegicus* n chimaerin; ESTsMm 10641; *Mus musculus* protein tyrosine phosphatase; Mm 100761; *H sapiens* transmembrane 4 superfamily member 7; *H sapiens* chromosome 3 clone RP11 19E8 map 3p; ESTsMm 26680; UI M BH3 avk f 09 0 UI s1 NIH BMAP M S4; ESTs Moderately similar to PRAJA1 M musculus Mm 41711; *Homo sapiens* RNA binding protein BRUNOL4; actin beta cytoplasmicMm 103618; NCK associated protein 1Mm 25203; *Mus musculus* transcription factor 4 Tcf4; ESTsMm 39985; Mouse mRNA for OSF 1; ESTsMm 27030; Mouse cysteine rich glycoprotein; ESTsMm 71533; *H sapiens* membrane glycoprotein M6; Human hBOIT brain type organic ion transporter; dickkopf homolog 3 *Xenopus laevis* Mm 55143; no match23; DNA segment Chr 19 Wayne State University 55 expressedMm 29835; *Mus musculus* calpain 4; ESTs Highly similar to EXCITATORY AMINO ACID TRANSPORTER 1 M musculus Mm 33356; Ca2 dependent activator protein for secretionMm 5058; oxidative stress inducedMm 9846; adducin 1 alpha Mm 29052; ESTs Weakly similar to ORF YKR092c *S cerevisiae* Mm 24356; *Mus musculus* membrane protein TMS 2 mRNA complete cdsMm 29344; *R norvegicus* neurodegeneration associated protein 1; glutamine synthetaseMm 2338; ESTsMm 24254; *Mus musculus* clusterin; Mouse beta tubulin gene M beta 4 3 end; *Mus musculus* vimentin; *Homo sapiens* mRNA cDNA DKFZp586N1922; ESTsMm 27467; *Mus musculus* mRNA for profilin II pfn2 gene Mm 20399; protein L isoaspartate D aspartate O methyltransferase 1Mm 25293; ESTsMm 41819; ESTs Weakly similar to p190 B M musculus Mm 13835; anti oxidant protein 2Mm 6587; *Mus musculus* sulfated glycoprotein 2 isoform 2; ESTs Highly similar to zyginI *R norvegicus* Mm 5264; calmodulinMm 2648; and *Homo sapiens* membrane glycoprotein M6, whereby neuronal cell death in the patient is stimulated.

31. The method of claim 30 wherein the patient has a neuronal tumor.

32. A method of promoting neuronal cell death in a patient, comprising:

administering to a patient in need of neuronal cell death a nucleic acid molecule encoding a neuronal marker (NM) protein selected from the group consisting of ESTsMm 40262; *Mus musculus* calcium binding protein 1; M musculus ribonucleic acid binding protein S1 Rnps1; ESTsMm 10622; contactin 3Mm 2968; *Mus musculus* glycoprotein 38;

neurochondrinMm 43445; no match8; Mus musculus crystallin beta A4; S100 protein beta polypeptide neuralMm 829; Mm 37346; chromogranin BMm 1339; no match111; glial fibrillary acidic proteinMm 1239; Sugano mouse brain mnCb MNCb 4842 5; Mus musculus Ly6 neurotoxin 1; ESTsMm 22801; Human Chromosome 7 clone RP11 297N5; proteolipid protein myelin Mm 1268; ESTs Weakly similar to F2 alpha prostoglandin regulatory protein M musculus Mm 29860; ESTsMm 28098; Mus musculus fibroblast growth factor 13; glutamate receptor ionotropic NMDA1 zeta 1 Mm 3292; amyloid beta A4 precursor protein binding family A member 2Mm 4657; ESTsMm 41808; Mus musculus zinc finger transcription factor Kaiso mRNA complete cdsMm 100832; R norvegicus mRNA for pro alpha 1 collagen type III; heat shock protein 25 kDa 2 cardiovascular Mm 103612; Mus musculus hypothetical protein I54; transcription factor 4Mm 4269; ESTs Highly similar to ATP SYNTHASE DELTA CHAIN MITOCHONDRIAL PRECURSOR Rattus norvegicus Mm 22514; M musculus vacuolar proton translocating ATPase 100 kDa subunit isoform a1 I; selenoprotein P plasma 1Mm 22699; solute carrier family 2 facilitated glucose transporter member 3Mm 3726; ESTsMm 33880; ESTsMm 34740; ESTsMm 29832; cathepsin DMm 2147; secretogranin IIIMm 2386; Mouse mRNA for neural cell adhesion molecu; Mus musculus glutathione S transferase mu 1; no match98; R norvegicus microtubule associated protein 1A MAP1A; M musculus selenoprotein P; Mus musculus secreted phosphoprotein 1; ESTsMm 27363; ESTs Moderately similar to CALPONIN ACIDIC ISOFORM Rattus norvegicus Mm 22171; collapsin response mediator protein 1Mm 22695; insulin like growth factor binding protein 5Mm 578; ESTs Highly similar to neuroglycan C precursor R norvegicus Mm 38496; Mus musculus melastatin 1 Mlsn1; ceruloplasminMm 13787; ESTs Weakly similar to delta 6 fatty acid desaturase M musculus Mm 30158; ESTsMm 43499; Rattus norvegicus CD44 protein; M musculus G protein coupled receptor 37; UI M BH3 aun e 05 0 UI s1 NIH BMAP M S4; M musculus secreted acidic cysteine rich glycoprotein; nuclear receptor co repressor 1Mm 88061; ribosomal protein mitochondrial S7Mm 29902; Mm 104779; tropomodulin 2Mm 44216; M musculus insulin like growth factor binding protein 5; Mus musculus secreted acidic cysteine rich gly; Homo sapiens KIAA1077 protein; stearoyl Coenzyme A desaturase 2Mm 298; M musculus dickkopf homolog 3 Dkk 3; Mus musculus transketolase Tkt; L0283F10 3 Mouse Newborn Ovary cDNA Library; Mus musculus neuron specific gene family member 2; prostaglandin D2 synthase 21 kDa brain Mm

1008; Mus neural cell adhesion molecule NCAM 140; Mouse brain specific small RNA; Mus musculus protein phosphatase 2; farnesyl diphosphate farnesyl transferase 1Mm 3204; Mmusculus proteolipid M6B isoform TMD psi M6B; Mouse brain neurofilament L; brain protein E46Mm 4098; Rattus norvegicus Spinophilin mRNA; ESTsMm 5258; ESTsMm 17436; Mouse heat shock protein hsp84; no match71; Mm 29846; R norvegicus n chimaerin; ESTsMm 10641; Mus musculus protein tyrosine phosphatase; Mm 100761; H sapiens transmembrane 4 superfamily member 7; H sapiens chromosome 3 clone RP11 19E8 map 3p; ESTsMm 26680; UI M BH3 avk f 09 0 UI s1 NIH BMAP M S4; ESTs Moderately similar to PRAJA1 M musculus Mm 41711; Homo sapiens RNA binding protein BRUNOL4; actin beta cytoplasmicMm 103618; NCK associated protein 1Mm 25203; Mus musculus transcription factor 4 Tcf4; ESTsMm 39985; Mouse mRNA for OSF 1; ESTsMm 27030; Mouse cysteine rich glycoprotein; ESTsMm 71533; H sapiens membrane glycoprotein M6; Human hBOIT brain type organic ion transporter; dickkopf homolog 3 Xenopus laevis Mm 55143; no match23; DNA segment Chr 19 Wayne State University 55 expressedMm 29835; Mus musculus calpain 4; ESTs Highly similar to EXCITATORY AMINO ACID TRANSPORTER 1 M musculus Mm 33356; Ca2 dependent activator protein for secretionMm 5058; oxidative stress inducedMm 9846; adducin 1 alpha Mm 29052; ESTs Weakly similar to ORF YKR092c S cerevisiae Mm 24356; Mus musculus membrane protein TMS 2 mRNA complete cdsMm 29344; R norvegicus neurodegeneration associated protein 1; glutamine synthetaseMm 2338; ESTsMm 24254; Mus musculus clusterin; Mouse beta tubulin gene M beta 4 3 end; Mus musculus vimentin; Homo sapiens mRNA cDNA DKFZp586N1922; ESTsMm 27467; Mus musculus mRNA for profilin II pfn2 gene Mm 20399; protein L isoaspartate D aspartate O methyltransferase 1Mm 25293; ESTsMm 41819; ESTs Weakly similar to p190 B M musculus Mm 13835; anti oxidant protein 2Mm 6587; Mus musculus sulfated glycoprotein 2 isoform 2; ESTs Highly similar to zyginI R norvegicus Mm 5264; calmodulinMm 2648; and Homo sapiens membrane glycoprotein M6 , whereby the NM protein is expressed and neuronal cell death in the patient is stimulated.

33. The method of claim 32 wherein the patient has a neuronal tumor.

34. A method of screening for neuronal cell death in a patient, comprising:

detecting a neuronal marker (NM) protein selected from the group consisting of ESTsMm 40262; Mus musculus calcium binding protein 1; M musculus ribonucleic acid

binding protein S1 Rnps1; ESTsMm 10622; contactin 3Mm 2968; Mus musculus glycoprotein 38; neurochondrinMm 43445; no match8; Mus musculus crystallin beta A4; S100 protein beta polypeptide neuralMm 829; Mm 37346; chromogranin BMm 1339; no match111; glial fibrillary acidic proteinMm 1239; Sugano mouse brain mncb MNCb 4842 5; Mus musculus Ly6 neurotoxin 1; ESTsMm 22801; Human Chromosome 7 clone RP11 297N5; proteolipid protein myelin Mm 1268; ESTs Weakly similar to F2 alpha prostoglandin regulatory protein M musculus Mm 29860; ESTsMm 28098; Mus musculus fibroblast growth factor 13; glutamate receptor ionotropic NMDA1 zeta 1 Mm 3292; amyloid beta A4 precursor protein binding family A member 2Mm 4657; ESTsMm 41808; Mus musculus zinc finger transcription factor Kaiso mRNA complete cdsMm 100832; R norvegicus mRNA for pro alpha 1 collagen type III; heat shock protein 25 kDa 2 cardiovascular Mm 103612; Mus musculus hypothetical protein I54; transcription factor 4Mm 4269; ESTs Highly similar to ATP SYNTHASE DELTA CHAIN MITOCHONDRIAL PRECURSOR Rattus norvegicus Mm 22514; M musculus vacuolar proton translocating ATPase 100 kDa subunit isoform a1 I; selenoprotein P plasma 1Mm 22699; solute carrier family 2 facilitated glucose transporter member 3Mm 3726; ESTsMm 33880; ESTsMm 34740; ESTsMm 29832; cathepsin DMm 2147; secretogranin IIIMm 2386; Mouse mRNA for neural cell adhesion molecu; Mus musculus glutathione S transferase mu 1; no match98; R norvegicus microtubule associated protein 1A MAP1A; M musculus selenoprotein P; Mus musculus secreted phosphoprotein 1; ESTsMm 27363; ESTs Moderately similar to CALPONIN ACIDIC ISOFORM Rattus norvegicus Mm 22171; collapsin response mediator protein 1Mm 22695; insulin like growth factor binding protein 5Mm 578; ESTs Highly similar to neuroglycan C precursor R norvegicus Mm 38496; Mus musculus melastatin 1 Mlsn1; ceruloplasminMm 13787; ESTs Weakly similar to delta 6 fatty acid desaturase M musculus Mm 30158; ESTsMm 43499; Rattus norvegicus CD44 protein; M musculus G protein coupled receptor 37; UI M BH3 aun e 05 0 UI s1 NIH BMAP M S4; M musculus secreted acidic cysteine rich glycoprotein; nuclear receptor co repressor 1Mm 88061; ribosomal protein mitochondrial S7Mm 29902; Mm 104779; tropomodulin 2Mm 44216; M musculus insulin like growth factor binding protein 5; Mus musculus secreted acidic cysteine rich gly; Homo sapiens KIAA1077 protein; stearyl Coenzyme A desaturase 2Mm 298; M musculus dickkopf homolog 3 Dkk 3; Mus musculus transketolase Tkt; L0283F10 3 Mouse Newborn Ovary cDNA Library; Mus

musculus neuron specific gene family member 2; prostaglandin D2 synthase 21 kDa brain Mm 1008; Mus neural cell adhesion molecule NCAM 140; Mouse brain specific small RNA; Mus musculus protein phosphatase 2; farnesyl diphosphate farnesyl transferase 1Mm 3204; Mmusculus proteolipid M6B isoform TMD psi M6B; Mouse brain neurofilament L; brain protein E46Mm 4098; Rattus norvegicus Spinophilin mRNA; ESTsMm 5258; ESTsMm 17436; Mouse heat shock protein hsp84; no match71; Mm 29846; R norvegicus n chimaerin; ESTsMm 10641; Mus musculus protein tyrosine phosphatase; Mm 100761; H sapiens transmembrane 4 superfamily member 7; H sapiens chromosome 3 clone RP11 19E8 map 3p; ESTsMm 26680; UI M BH3 avk f 09 0 UI s1 NIH BMAP M S4; ESTs Moderately similar to PRAJA1 M musculus Mm 41711; Homo sapiens RNA binding protein BRUNOL4; actin beta cytoplasmicMm 103618; NCK associated protein 1Mm 25203; Mus musculus transcription factor 4 Tcf4; ESTsMm 39985; Mouse mRNA for OSF 1; ESTsMm 27030; Mouse cysteine rich glycoprotein; ESTsMm 71533; H sapiens membrane glycoprotein M6; Human hBOIT brain type organic ion transporter; dickkopf homolog 3 Xenopus laevis Mm 55143; no match23; DNA segment Chr 19 Wayne State University 55 expressedMm 29835; Mus musculus calpain 4; ESTs Highly similar to EXCITATORY AMINO ACID TRANSPORTER 1 M musculus Mm 33356; Ca2 dependent activator protein for secretionMm 5058; oxidative stress inducedMm 9846; adducin 1 alpha Mm 29052; ESTs Weakly similar to ORF YKR092c S cerevisiae Mm 24356; Mus musculus membrane protein TMS 2 mRNA complete cdsMm 29344; R norvegicus neurodegeneration associated protein 1; glutamine synthetaseMm 2338; ESTsMm 24254; Mus musculus clusterin; Mouse beta tubulin gene M beta 4 3 end; Mus musculus vimentin; Homo sapiens mRNA cDNA DKFZp586N1922; ESTsMm 27467; Mus musculus mRNA for profilin II pfn2 gene Mm 20399; protein L isoaspartate D aspartate O methyltransferase 1Mm 25293; ESTsMm 41819; ESTs Weakly similar to p190 B M musculus Mm 13835; anti oxidant protein 2Mm 6587; Mus musculus sulfated glycoprotein 2 isoform 2; ESTs Highly similar to zyginI R norvegicus Mm 5264; calmodulinMm 2648; and Homo sapiens membrane glycoprotein M6 , in a body fluid collected from the patient, wherein detection of the NM protein indicates neuronal cell death in the patient.

35. A method of screening for neuronal cell death in a patient, comprising:

detecting in a body fluid collected from the patient a nucleic acid encoding a neuronal marker (NM) protein selected from the group consisting of: ESTsMm 40262; Mus musculus calcium binding protein 1; M musculus ribonucleic acid binding protein S1 Rnps1; ESTsMm 10622; contactin 3Mm 2968; Mus musculus glycoprotein 38; neurochondrinMm 43445; no match8; Mus musculus crystallin beta A4; S100 protein beta polypeptide neuralMm 829; Mm 37346; chromogranin BMm 1339; no match111; glial fibrillary acidic proteinMm 1239; Sugano mouse brain mncb MNCb 4842 5; Mus musculus Ly6 neurotoxin 1; ESTsMm 22801; Human Chromosome 7 clone RP11 297N5; proteolipid protein myelin Mm 1268; ESTs Weakly similar to F2 alpha prostoglandin regulatory protein M musculus Mm 29860; ESTsMm 28098; Mus musculus fibroblast growth factor 13; glutamate receptor ionotropic NMDA1 zeta 1 Mm 3292; amyloid beta A4 precursor protein binding family A member 2Mm 4657; ESTsMm 41808; Mus musculus zinc finger transcription factor Kaiso mRNA complete cdsMm 100832; R norvegicus mRNA for pro alpha 1 collagen type III; heat shock protein 25 kDa 2 cardiovascular Mm 103612; Mus musculus hypothetical protein I54; transcription factor 4Mm 4269; ESTs Highly similar to ATP SYNTHASE DELTA CHAIN MITOCHONDRIAL PRECURSOR Rattus norvegicus Mm 22514; M musculus vacuolar proton translocating ATPase 100 kDa subunit isoform a1 I; selenoprotein P plasma 1Mm 22699; solute carrier family 2 facilitated glucose transporter member 3Mm 3726; ESTsMm 33880; ESTsMm 34740; ESTsMm 29832; cathepsin DMm 2147; secretogranin IIIMm 2386; Mouse mRNA for neural cell adhesion molecu; Mus musculus glutathione S transferase mu 1; no match98; R norvegicus microtubule associated protein 1A MAP1A; M musculus selenoprotein P; Mus musculus secreted phosphoprotein 1; ESTsMm 27363; ESTs Moderately similar to CALPONIN ACIDIC ISOFORM Rattus norvegicus Mm 22171; collapsin response mediator protein 1Mm 22695; insulin like growth factor binding protein 5Mm 578; ESTs Highly similar to neuroglycan C precursor R norvegicus Mm 38496; Mus musculus melastatin 1 Mlsn1; ceruloplasminMm 13787; ESTs Weakly similar to delta 6 fatty acid desaturase M musculus Mm 30158; ESTsMm 43499; Rattus norvegicus CD44 protein; M musculus G protein coupled receptor 37; UI M BH3 aun e 05 0 UI s1 NIH BMAP M S4; M musculus secreted acidic cysteine rich glycoprotein; nuclear receptor co repressor 1Mm 88061; ribosomal protein mitochondrial S7Mm 29902; Mm 104779; tropomodulin 2Mm 44216; M musculus insulin like growth factor binding protein 5;

Mus musculus secreted acidic cysteine rich gly; Homo sapiens KIAA1077 protein; stearyl Coenzyme A desaturase 2Mm 298; M musculus dickkopf homolog 3 Dkk 3; Mus musculus transketolase Tkt; L0283F10 3 Mouse Newborn Ovary cDNA Library; Mus musculus neuron specific gene family member 2; prostaglandin D2 synthase 21 kDa brain Mm 1008; Mus neural cell adhesion molecule NCAM 140; Mouse brain specific small RNA; Mus musculus protein phosphatase 2; farnesyl diphosphate farnesyl transferase 1Mm 3204; Mmusculus proteolipid M6B isoform TMD psi M6B; Mouse brain neurofilament L; brain protein E46Mm 4098; Rattus norvegicus Spinophilin mRNA; ESTsMm 5258; ESTsMm 17436; Mouse heat shock protein hsp84; no match71; Mm 29846; R norvegicus n chimaerin; ESTsMm 10641; Mus musculus protein tyrosine phosphatase; Mm 100761; H sapiens transmembrane 4 superfamily member 7; H sapiens chromosome 3 clone RP11 19E8 map 3p; ESTsMm 26680; UI M BH3 avk f 09 0 UI s1 NIH BMAP M S4; ESTs Moderately similar to PRAJA1 M musculus Mm 41711; Homo sapiens RNA binding protein BRUNOL4; actin beta cytoplasmicMm 103618; NCK associated protein 1Mm 25203; Mus musculus transcription factor 4 Tcf4; ESTsMm 39985; Mouse mRNA for OSF 1; ESTsMm 27030; Mouse cysteine rich glycoprotein; ESTsMm 71533; H sapiens membrane glycoprotein M6; Human hBOIT brain type organic ion transporter; dickkopf homolog 3 Xenopus laevis Mm 55143; no match23; DNA segment Chr 19 Wayne State University 55 expressedMm 29835; Mus musculus calpain 4; ESTs Highly similar to EXCITATORY AMINO ACID TRANSPORTER 1 M musculus Mm 33356; Ca² dependent activator protein for secretionMm 5058; oxidative stress inducedMm 9846; adducin 1 alpha Mm 29052; ESTs Weakly similar to ORF YKR092c S cerevisiae Mm 24356; Mus musculus membrane protein TMS 2 mRNA complete cdsMm 29344; R norvegicus neurodegeneration associated protein 1; glutamine synthetaseMm 2338; ESTsMm 24254; Mus musculus clusterin; Mouse beta tubulin gene M beta 4 3 end; Mus musculus vimentin; Homo sapiens mRNA cDNA DKFZp586N1922; ESTsMm 27467; Mus musculus mRNA for profilin II pfn2 gene Mm 20399; protein L isoaspartate D aspartate O methyltransferase 1Mm 25293; ESTsMm 41819; ESTs Weakly similar to p190 B M musculus Mm 13835; anti oxidant protein 2Mm 6587; Mus musculus sulfated glycoprotein 2 isoform 2; ESTs Highly similar to zygini R norvegicus Mm 5264; calmodulinMm 2648; and Homo sapiens membrane glycoprotein M6, wherein detection of the NM protein indicates neuronal cell death in the patient.

36. A method to identify candidate drugs for treating neuronal cell death,
comprising:

contacting cells which express one or more neuronal marker (NM) genes selected from the group consisting of: ESTsMm 40262; Mus musculus calcium binding protein 1; M musculus ribonucleic acid binding protein S1 Rnps1; ESTsMm 10622; contactin 3Mm 2968; Mus musculus glycoprotein 38; neurochondrinMm 43445; no match8; Mus musculus crystallin beta A4; S100 protein beta polypeptide neuralMm 829; Mm 37346; chromogranin BMm 1339; no match111; glial fibrillary acidic proteinMm 1239; Sugano mouse brain mnch MNCb 4842 5; Mus musculus Ly6 neurotoxin 1; ESTsMm 22801; Human Chromosome 7 clone RP11 297N5; proteolipid protein myelin Mm 1268; ESTs Weakly similar to F2 alpha prostoglandin regulatory protein M musculus Mm 29860; ESTsMm 28098; Mus musculus fibroblast growth factor 13; glutamate receptor ionotropic NMDA1 zeta 1 Mm 3292; amyloid beta A4 precursor protein binding family A member 2Mm 4657; ESTsMm 41808; Mus musculus zinc finger transcription factor Kaiso mRNA complete cdsMm 100832; R norvegicus mRNA for pro alpha 1 collagen type III; heat shock protein 25 kDa 2 cardiovascular Mm 103612; Mus musculus hypothetical protein I54; transcription factor 4Mm 4269; ESTs Highly similar to ATP SYNTHASE DELTA CHAIN MITOCHONDRIAL PRECURSOR Rattus norvegicus Mm 22514; M musculus vacuolar proton translocating ATPase 100 kDa subunit isoform a1 I; selenoprotein P plasma 1Mm 22699; solute carrier family 2 facilitated glucose transporter member 3Mm 3726; ESTsMm 33880; ESTsMm 34740; ESTsMm 29832; cathepsin DMm 2147; secretogranin IIIMm 2386; Mouse mRNA for neural cell adhesion molecu; Mus musculus glutathione S transferase mu 1; no match98; R norvegicus microtubule associated protein 1A MAP1A; M musculus selenoprotein P; Mus musculus secreted phosphoprotein 1; ESTsMm 27363; ESTs Moderately similar to CALPONIN ACIDIC ISOFORM Rattus norvegicus Mm 22171; collapsin response mediator protein 1Mm 22695; insulin like growth factor binding protein 5Mm 578; ESTs Highly similar to neuroglycan C precursor R norvegicus Mm 38496; Mus musculus melastatin 1 Mlsn1; ceruloplasminMm 13787; ESTs Weakly similar to delta 6 fatty acid desaturase M musculus Mm 30158; ESTsMm 43499; Rattus norvegicus CD44 protein; M musculus G protein coupled receptor 37; UI M BH3 aun e 05 0 UI s1 NIH BMAP M S4; M musculus secreted acidic cysteine rich glycoprotein; nuclear receptor co repressor 1Mm 88061;

ribosomal protein mitochondrial S7Mm 29902; Mm 104779; tropomodulin 2Mm 44216; M musculus insulin like growth factor binding protein 5; Mus musculus secreted acidic cysteine rich gly; Homo sapiens KIAA1077 protein; stearyl Coenzyme A desaturase 2Mm 298; M musculus dickkopf homolog 3 Dkk 3; Mus musculus transketolase Tkt; L0283F10 3 Mouse Newborn Ovary cDNA Library; Mus musculus neuron specific gene family member 2; prostaglandin D2 synthase 21 kDa brain Mm 1008; Mus neural cell adhesion molecule NCAM 140; Mouse brain specific small RNA; Mus musculus protein phosphatase 2; farnesyl diphosphate farnesyl transferase 1Mm 3204; Mmusculus proteolipid M6B isoform TMD psi M6B; Mouse brain neurofilament L; brain protein E46Mm 4098; Rattus norvegicus Spinophilin mRNA; ESTsMm 5258; ESTsMm 17436; Mouse heat shock protein hsp84; no match71; Mm 29846; R norvegicus n chimaerin; ESTsMm 10641; Mus musculus protein tyrosine phosphatase; Mm 100761; H sapiens transmembrane 4 superfamily member 7; H sapiens chromosome 3 clone RP11 19E8 map 3p; ESTsMm 26680; UI M BH3 avk f 09 0 UI s1 NIH BMAP M S4; ESTs Moderately similar to PRAJA1 M musculus Mm 41711; Homo sapiens RNA binding protein BRUNOL4; actin beta cytoplasmicMm 103618; NCK associated protein 1Mm 25203; Mus musculus transcription factor 4 Tcf4; ESTsMm 39985; Mouse mRNA for OSF 1; ESTsMm 27030; Mouse cysteine rich glycoprotein; ESTsMm 71533; H sapiens membrane glycoprotein M6; Human hBOIT brain type organic ion transporter; dickkopf homolog 3 Xenopus laevis Mm 55143; no match23; DNA segment Chr 19 Wayne State University 55 expressedMm 29835; Mus musculus calpain 4; ESTs Highly similar to EXCITATORY AMINO ACID TRANSPORTER 1 M musculus Mm 33356; Ca2 dependent activator protein for secretionMm 5058; oxidative stress inducedMm 9846; adducin 1 alpha Mm 29052; ESTs Weakly similar to ORF YKR092c S cerevisiae Mm 24356; Mus musculus membrane protein TMS 2 mRNA complete cdsMm 29344; R norvegicus neurodegeneration associated protein 1; glutamine synthetaseMm 2338; ESTsMm 24254; Mus musculus clusterin; Mouse beta tubulin gene M beta 4 3 end; Mus musculus vimentin; Homo sapiens mRNA cDNA DKFZp586N1922; ESTsMm 27467; Mus musculus mRNA for profilin II pfn2 gene Mm 20399; protein L isoaspartate D aspartate O methyltransferase 1Mm 25293; ESTsMm 41819; ESTs Weakly similar to p190 B M musculus Mm 13835; anti oxidant protein 2Mm 6587; Mus musculus sulfated glycoprotein 2

isoform 2; ESTs Highly similar to zyginI R norvegicus Mm 5264; calmodulinMm 2648; and Homo sapiens membrane glycoprotein M6 , with a test compound;

determining expression of said one or more NM genes by hybridization of mRNA of said cells to a nucleic acid probe which is complementary to said mRNA; and

identifying a test compound as a candidate drug for treating neuronal cell death if it decreases expression of said one or more NM genes.

37. The method of claim 36 wherein the cells are retinal cells.

38. The method of claim 36 wherein the cells are recombinant host cells which are transfected with an expression construct which encodes said one or more NMs.

39. A method to identify candidate drugs for treating neuronal cell death, comprising:

contacting cells which express one or more neuronal marker (NM) proteins selected from the group consisting of: ESTsMm 40262; Mus musculus calcium binding protein 1; M musculus ribonucleic acid binding protein S1 Rnps1; ESTsMm 10622; contactin 3Mm 2968; Mus musculus glycoprotein 38; neurochondrinMm 43445; no match8; Mus musculus crystallin beta A4; S100 protein beta polypeptide neuralMm 829; Mm 37346; chromogranin BMm 1339; no match111; glial fibrillary acidic proteinMm 1239; Sugano mouse brain mncb MNCb 4842 5; Mus musculus Ly6 neurotoxin 1; ESTsMm 22801; Human Chromosome 7 clone RP11 297N5; proteolipid protein myelin Mm 1268; ESTs Weakly similar to F2 alpha prostoglandin regulatory protein M musculus Mm 29860; ESTsMm 28098; Mus musculus fibroblast growth factor 13; glutamate receptor ionotropic NMDA1 zeta 1 Mm 3292; amyloid beta A4 precursor protein binding family A member 2Mm 4657; ESTsMm 41808; Mus musculus zinc finger transcription factor Kaiso mRNA complete cdsMm 100832; R norvegicus mRNA for pro alpha 1 collagen type III; heat shock protein 25 kDa 2 cardiovascular Mm 103612; Mus musculus hypothetical protein I54; transcription factor 4Mm 4269; ESTs Highly similar to ATP SYNTHASE DELTA CHAIN MITOCHONDRIAL PRECURSOR Rattus norvegicus Mm 22514; M musculus vacuolar proton translocating ATPase 100 kDa subunit isoform a1 I; selenoprotein P plasma 1Mm 22699; solute carrier family 2 facilitated glucose

transporter member 3Mm 3726; ESTsMm 33880; ESTsMm 34740; ESTsMm 29832; cathepsin DMm 2147; secretogranin IIIMm 2386; Mouse mRNA for neural cell adhesion molecu; Mus musculus glutathione S transferase mu 1; no match98; R norvegicus microtubule associated protein 1A MAP1A; M musculus selenoprotein P; Mus musculus secreted phosphoprotein 1; ESTsMm 27363; ESTs Moderately similar to CALPONIN ACIDIC ISOFORM Rattus norvegicus Mm 22171; collapsin response mediator protein 1Mm 22695; insulin like growth factor binding protein 5Mm 578; ESTs Highly similar to neuroglycan C precursor R norvegicus Mm 38496; Mus musculus melastatin 1 Mlsn1; ceruloplasminMm 13787; ESTs Weakly similar to delta 6 fatty acid desaturase M musculus Mm 30158; ESTsMm 43499; Rattus norvegicus CD44 protein; M musculus G protein coupled receptor 37; UI M BH3 aun e 05 0 UI s1 NIH BMAP M S4; M musculus secreted acidic cysteine rich glycoprotein; nuclear receptor co repressor 1Mm 88061; ribosomal protein mitochondrial S7Mm 29902; Mm 104779; tropomodulin 2Mm 44216; M musculus insulin like growth factor binding protein 5; Mus musculus secreted acidic cysteine rich gly; Homo sapiens KIAA1077 protein; stearyl Coenzyme A desaturase 2Mm 298; M musculus dickkopf homolog 3 Dkk 3; Mus musculus transketolase Tkt; L0283F10 3 Mouse Newborn Ovary cDNA Library; Mus musculus neuron specific gene family member 2; prostaglandin D2 synthase 21 kDa brain Mm 1008; Mus neural cell adhesion molecule NCAM 140; Mouse brain specific small RNA; Mus musculus protein phosphatase 2; farnesyl diphosphate farnesyl transferase 1Mm 3204; Mmusculus proteolipid M6B isoform TMD psi M6B; Mouse brain neurofilament L; brain protein E46Mm 4098; Rattus norvegicus Spinophilin mRNA; ESTsMm 5258; ESTsMm 17436; Mouse heat shock protein hsp84; no match71; Mm 29846; R norvegicus n chimaerin; ESTsMm 10641; Mus musculus protein tyrosine phosphatase; Mm 100761; H sapiens transmembrane 4 superfamily member 7; H sapiens chromosome 3 clone RP11 19E8 map 3p; ESTsMm 26680; UI M BH3 avk f 09 0 UI s1 NIH BMAP M S4; ESTs Moderately similar to PRAJA1 M musculus Mm 41711; Homo sapiens RNA binding protein BRUNOL4; actin beta cytoplasmicMm 103618; NCK associated protein 1Mm 25203; Mus musculus transcription factor 4 Tcf4; ESTsMm 39985; Mouse mRNA for OSF 1; ESTsMm 27030; Mouse cysteine rich glycoprotein; ESTsMm 71533; H sapiens membrane glycoprotein M6; Human hBOIT brain type organic ion transporter; dickkopf homolog 3 Xenopus laevis Mm 55143; no match23; DNA segment Chr 19 Wayne State

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determining amount of said one or more NM proteins in said cells;

and

identifying a test compound as a candidate drug for treating tumors if it decreases the amount of one more NM proteins in said cells.

40. The method of claim 39 wherein the cells are retinal cells.

41. The method of claim 39 wherein the cells are recombinant host cells which are transfected with an expression construct which encodes said one or more NMs.

42. A method to identify candidate drugs for treating neuronal cell death, comprising:

contacting cells which express one or more neuronal marker (NM) proteins selected from the group consisting of: ESTs Mm 40262; Mus musculus calcium binding protein 1; M musculus ribonucleic acid binding protein S1 Rnps1; ESTs Mm 10622; contactin 3 Mm 2968; Mus musculus glycoprotein 38; neurochondrin Mm 43445; no match 8; Mus musculus crystallin beta A4; S100 protein beta polypeptide neural Mm 829; Mm 37346; chromogranin B Mm 1339; no match 111; glial fibrillary acidic protein Mm 1239; Sugano mouse brain mncb MNCb 4842 5; Mus musculus Ly6 neurotoxin 1; ESTs Mm 22801; Human Chromosome 7 clone

RP11 297N5; proteolipid protein myelin Mm 1268; ESTs Weakly similar to F2 alpha prostoglandin regulatory protein M musculus Mm 29860; ESTsMm 28098; Mus musculus fibroblast growth factor 13; glutamate receptor ionotropic NMDA1 zeta 1 Mm 3292; amyloid beta A4 precursor protein binding family A member 2Mm 4657; ESTsMm 41808; Mus musculus zinc finger transcription factor Kaiso mRNA complete cdsMm 100832; R norvegicus mRNA for pro alpha 1 collagen type III; heat shock protein 25 kDa 2 cardiovascular Mm 103612; Mus musculus hypothetical protein I54; transcription factor 4Mm 4269; ESTs Highly similar to ATP SYNTHASE DELTA CHAIN MITOCHONDRIAL PRECURSOR Rattus norvegicus Mm 22514; M musculus vacuolar proton translocating ATPase 100 kDa subunit isoform a1 I; selenoprotein P plasma 1Mm 22699; solute carrier family 2 facilitated glucose transporter member 3Mm 3726; ESTsMm 33880; ESTsMm 34740; ESTsMm 29832; cathepsin DMm 2147; secretogranin IIIMm 2386; Mouse mRNA for neural cell adhesion molecu; Mus musculus glutathione S transferase mu 1; no match98; R norvegicus microtubule associated protein 1A MAP1A; M musculus selenoprotein P; Mus musculus secreted phosphoprotein 1; ESTsMm 27363; ESTs Moderately similar to CALPONIN ACIDIC ISOFORM Rattus norvegicus Mm 22171; collapsin response mediator protein 1Mm 22695; insulin like growth factor binding protein 5Mm 578; ESTs Highly similar to neuroglycan C precursor R norvegicus Mm 38496; Mus musculus melastatin 1 Mlsn1; ceruloplasminMm 13787; ESTs Weakly similar to delta 6 fatty acid desaturase M musculus Mm 30158; ESTsMm 43499; Rattus norvegicus CD44 protein; M musculus G protein coupled receptor 37; UI M BH3 aun e 05 0 UI s1 NIH BMAP M S4; M musculus secreted acidic cysteine rich glycoprotein; nuclear receptor co repressor 1Mm 88061; ribosomal protein mitochondrial S7Mm 29902; Mm 104779; tropomodulin 2Mm 44216; M musculus insulin like growth factor binding protein 5; Mus musculus secreted acidic cysteine rich gly; Homo sapiens KIAA1077 protein; stearyl Coenzyme A desaturase 2Mm 298; M musculus dickkopf homolog 3 Dkk 3; Mus musculus transketolase Tkt; L0283F10 3 Mouse Newborn Ovary cDNA Library; Mus musculus neuron specific gene family member 2; prostaglandin D2 synthase 21 kDa brain Mm 1008; Mus neural cell adhesion molecule NCAM 140; Mouse brain specific small RNA; Mus musculus protein phosphatase 2; farnesyl diphosphate farnesyl transferase 1Mm 3204; Mmusculus proteolipid M6B isoform TMD psi M6B; Mouse brain neurofilament L; brain protein E46Mm 4098; Rattus

norvegicus Spinophilin mRNA; ESTsMm 5258; ESTsMm 17436; Mouse heat shock protein hsp84; no match71; Mm 29846; R norvegicus n chimaerin; ESTsMm 10641; Mus musculus protein tyrosine phosphatase; Mm 100761; H sapiens transmembrane 4 superfamily member 7; H sapiens chromosome 3 clone RP11 19E8 map 3p; ESTsMm 26680; UI M BH3 avk f 09 0 UI s1 NIH BMAP M S4; ESTs Moderately similar to PRAJA1 M musculus Mm 41711; Homo sapiens RNA binding protein BRUNOL4; actin beta cytoplasmicMm 103618; NCK associated protein 1Mm 25203; Mus musculus transcription factor 4 Tcf4; ESTsMm 39985; Mouse mRNA for OSF 1; ESTsMm 27030; Mouse cysteine rich glycoprotein; ESTsMm 71533; H sapiens membrane glycoprotein M6; Human hBOIT brain type organic ion transporter; dickkopf homolog 3 Xenopus laevis Mm 55143; no match23; DNA segment Chr 19 Wayne State University 55 expressedMm 29835; Mus musculus calpain 4; ESTs Highly similar to EXCITATORY AMINO ACID TRANSPORTER 1 M musculus Mm 33356; Ca2 dependent activator protein for secretionMm 5058; oxidative stress inducedMm 9846; adducin 1 alpha Mm 29052; ESTs Weakly similar to ORF YKR092c S cerevisiae Mm 24356; Mus musculus membrane protein TMS 2 mRNA complete cdsMm 29344; R norvegicus neurodegeneration associated protein 1; glutamine synthetaseMm 2338; ESTsMm 24254; Mus musculus clusterin; Mouse beta tubulin gene M beta 4 3 end; Mus musculus vimentin; Homo sapiens mRNA cDNA DKFZp586N1922; ESTsMm 27467; Mus musculus mRNA for profilin II pfn2 gene Mm 20399; protein L isoaspartate D aspartate O methyltransferase 1Mm 25293; ESTsMm 41819; ESTs Weakly similar to p190 B M musculus Mm 13835; anti oxidant protein 2Mm 6587; Mus musculus sulfated glycoprotein 2 isoform 2; ESTs Highly similar to zygini R norvegicus Mm 5264; calmodulinMm 2648; and Homo sapiens membrane glycoprotein M6, with a test compound;

determining activity of said one or more NM proteins in said cells;

and

identifying a test compound as a candidate drug for treating neuronal cell death if it decreases the activity of one more NM proteins in said cells.

43. The method of claim 42 wherein the cells are retinal cells.

44. The method of claim 42 wherein the cells are recombinant host cells which are transfected with an expression construct which encodes said one or more NMs.

45. A method to identify candidate drugs for treating neuronal cell death, comprising:

contacting cells which express one or more neuronal marker (NM) genes selected from the group consisting of Mus musculus retinal S antigen; Mus musculus neural retina leucine zipper gene; M musculus photoreceptor specific protein PSP G145; IMAGE 4507893 5; Mus musculus domesticus phosducin; IMAGE 4507284 5; Danio rerio brain type fatty acid binding protein; M musculus X linked juvenile retinoschisis protein; M musculus guanine nucleotide binding protein beta 1 Gnb1; Mus musculus TPA regulated locus; Mouse nuclear protein mdm 1; IMAGE 4511806 5; M musculus male germ cell associated kinase; heat shock protein 60 kDaMm 1777; no match17; NCI CGAP BC3 Mus musculus cDNA clone IMAGE 3976794; no homol6; Homo sapiens CGI 45 protein; ESTsMm 44103; Mouse opsin MOPS; IMAGE 4225062 5; Mm 100212; H sapiens fer fps fes related tyrosine kinase phosphoprotein NCP94 FER; IMAGE 4505626 5 602393946F1 NIH MGC 94; solute carrier family 12 member 2Mm 4168; Mus musculus BUB2 like protein 1 HBLP1 mRNA complete cdsMm 104771; hemoglobin Y beta like embryonic chainMm 35830; erythrocyte protein band 4 1Mm 30038; no match55; Mus musculus MYLE protein mRNA complete cdsMm 41091; RIKEN full length enriched adult male hypothalamus musculus cDNA clone A230050E13; NCI CGAP Mam6 Mus IMAGE 3500058; Mus musculus mRNA for GTP binding protein drg2 gene Mm 41803; Homo sapiens mRNA for KIAA1549 protein; Mus musculus karyopherin importin alpha 2 Kpna2; UI M BZ1 bk v b 01 0 UI 3; no match B; ESTsMm 939; Mus musculus cDNA sequence AF244542; IMAGE 1348390 5; solute carrier family 30 zinc transporter member 3Mm 1396; no match110; Mus musculus homeodomain protein crx; promininMm 6250; no homol3; IMAGE 1279184 5; Human microfibril associated glycoprotein 4; Mm 70462; no match A; Rattus sp mRNA for BHF 1; ribosomal protein S24Mm 16775; Stratagene mouse Tcell 937311 IMAGE 1002041; NCI CGAP Kid14 Mus IMAGE 4236354 5; R norvegicus retinoblastoma binding protein 9; Mus musculus exostoses multiple 1 Ext1; selectin endothelial cell ligandMm 488; ESTs Weakly similar to HYPOTHETICAL 16 1 KD PROTEIN IN SEC17 QCR1 INTERGENIC REGION

Saccharomyces cerevisiae Mm 27114; ESTs Highly similar to KIAA0824 protein H sapiens Mm 34579; *Mus musculus* ribosomal protein L10A Rpl10a; *R. norvegicus* ribonucleoprotein F; clone 1110007F23; no match38; *M. musculus* Srp20 gene; homeodomain interacting protein kinase 2Mm 20934; FSHD region gene 1Mm 67; UI M BH3 ari c 10 0 UI s1 NIH BMAP M S4; Homo sapiens CED 6 protein CED 6; *Mus musculus* RIKEN clone 0610009E22; RAB18 member RAS oncogene familyMm 22660; no match5; *Mus musculus* prominin Prom; ribosomal protein L12Mm 70127; ESTs Highly similar to ELONGATION FACTOR 1 DELTA Homo sapiens Mm 21086; ESTs Highly similar to HYPOTHETICAL 37 2 KD PROTEIN C12C2 09C IN CHROMOSOME I *Schizosaccharomyces pombe* Mm 21383; clone 3021401C12; *M. musculus* very long chain acyl CoA dehydrogenase; vitronectinMm 3667; ESTs Weakly similar to LIV 1 protein H sapiens Mm 41214; *Mus musculus* dopamine receptor 4; no match7; ATPase H transporting lysosomal vacuolar proton pump noncatalytic accessory protein 1 110 160 kDa Mm 20869; *Rattus norvegicus* partial mRNA for CRM1 protein; eukaryotic translation elongation factor 1 alpha 1Mm 16317; Human karyopherin beta2 importin; ESTs Moderately similar to hypothetical protein H sapiens Mm 22878; Homo sapiens PAC clone RP4 687K1; UI M AO1 aeh e 11 0 UI r1 NIH BMAP MPG N; high mobility group protein 14Mm 2756; ESTsMm 31374; *R. norvegicus* aryl hydrocarbon interacting protein like 1; UI M CG0p bmu h 08 0 UI s1 NIH BMAP Ret4 S2; RAB10 member RAS oncogene familyMm 9455; *Mus musculus* early development regulator 2; no match83; *Mus musculus* topoisomerase DNA II beta; alpha tubulin; Homo sapiens MTA1 L1; retinitis pigmentosa GTPase regulator interacting protein 1 Mm 21662; *Mus musculus* FXD domain containing ion transport regulator 5; *Mus musculus* cytochrome P450 3A25 CYP3A25 mRNA complete cdsMm 26993; IMAGE 4505626 5; RNA polymerase II transcriptional coactivatorMm 966; ESTs Highly similar to CAAX prenyl protease H sapiens Mm 34399; Soares mammary gland NbMMG IMAGE 1347586; clone 2700067D09; ESTs Weakly similar to defline not available 5901802 *D. melanogaster* Mm 35127; torsin family 1 member AMm 29151; Mm 23086; *M. musculus* brain cyclic nucleotide gated K; *Mus musculus* N myc downstream regulated 1; Homo sapiens splicing factor 3b subunit 3; *Mus musculus* mRNA for Lim homeodomain protein Islet1Mm 42242; Mouse mRNA for syntaxin 3D 1; *Mus musculus* chromosome 7 clone 19K5; ES18 proteinMm 23296; ESTs Highly similar to KIAA0729 protein H sapiens Mm 13148; ESTsMm 33949; Rat transcription factor RZR beta

gene; ESTs Moderately similar to hypothetical protein H sapiens Mm 30235; Homo sapiens KIAA0009 gene product; no match X; ESTs Moderately similar to MYOSIN LIGHT CHAIN KINASE Dictyostelium discoideum Mm 1881; serum glucocorticoid regulated kinaseMm 28405; ESTs Weakly similar to cappuccino D melanogaster Mm 41762; regulator of G protein signaling 9Mm 38548; ESTsMm 34351; ESTsMm 32460; Mm 44404; ESTsMm 37515; Mus musculus cytochrome P450 2f2 Cyp2f2; Finkel Biskis Reilly murine sarcoma virus FBR MuSV ubiquitously expressed fox derived Mm 4890; guanylate cyclase activator 1a retina Mm 16224; human CRX control; adducin 2 beta Mm 104155; mouse CRX control; NRL control; Mus musculus ELOVL4; Mus musculus N myc downstream regulated 3; lactate dehydrogenase 1 A chainMm 26504; ESTs Moderately similar to stromelysin PDGF responsive element binding protein transcription factor M musculus Mm 38372; ESTsMm 11285; M musculus chr 10 clone RP21 39C4; ESTs Highly similar to 40 KD PEPTIDYL PROLYL CIS TRANS ISOMERASE Homo sapiens Mm 30242; NIH BMAP Ret4 S2 Mus UI M CG0p big e 08 0 UI 3; Soares mammary gland NMLMG IMAGE 3467149; glycosylphosphatidylinositol 1 homolog human Mm 6354; Rattus norvegicus NMDA receptor subunit NR2; ESTsMm 33788; Mus musculus hexokinase 1 Hk1; inosine 5 phosphate dehydrogenase 2Mm 6065; N myc downstream regulated 3Mm 36775; no match V; villin 2Mm 4551; Rattus norvegicus TM6P1 TM6P1; Mus musculus mRNA for heterogeneous nuclear ribonucleoprotein HMm 21740; ESTsMm 103333; Mus musculus retinal taurine transporter; Mus musculus poly rC binding protein; ESTs Weakly similar to nuclear poly C binding protein M musculus Mm 29707; ESTs Weakly similar to similar to 1 acyl glycerol 3 phosphate acyltransferases C elegans Mm 24117; Mm 27013; pre B cell leukemia transcription factor 3Mm 7331; ESTsMm 21299; Mus musculus kinectin 1; Mus musculus drebrin A mRNA complete cdsMm 104044; H3087H01 5 NIA Mouse 15K cDNA Clone Set; SAC483 Mouse e14 5 developing pituitary gland; cloneE130113K08; Mus musculus major histocompatibility locus class II region Fas binding protein Daxx DAXX gene partial cds Bing1 BING1 tapasin tapasin RalGDS like factor RLF KE2 KE2 BING4 BING4 beta1 3 galactosyl transferase beta1 3 galactosylMm 20926; Mus musculus aquaporin 1; acyl Coenzyme A dehydrogenase very long chainMm 18630; Mouse proprotein convertase 4; M musculus activating transcription factor 4 Atf4; guanine nucleotide binding protein beta 5Mm 4702; phosducin control; ESTsMm 38578; Barstead bowel MPLRB9 IMAGE 1095982; M musculus

stromal cell derived factor recep; ESTs Weakly similar to E04F6 2 gene product C elegans Mm 18889; IMAGE 963149 5; syntaxin binding protein 1 Mm 3129; solute carrier family 16 monocarboxylic acid transporters member 1Mm 9086; ESTs Highly similar to TRICARBOXYLATE TRANSPORT PROTEIN PRECURSOR Rattus norvegicus Mm 22679; Bcl2 likeMm 3882; Soares mouse p3NMF19 5 IMAGE 493296; Mus musculus beta galactosidase complex; H sapiens ADP ribosylation factor binding protein GGA2; Mm 31266; IMAGE 560050 5; Mus musculus DXHXS6673E protein DXHXS6673E mRNA complete cdsMm 23458; M musculus mRNA for hair keratin mHb6; Mus musculus thyroglobulin; ESTs Moderately similar to KIAA0956 protein H sapiens Mm 11428; H3050H05 3 NIA Mouse 15K cDNA Clone Set; ESTs Moderately similar to signal recognition particle 54K protein M musculus Mm 32508; Mouse PSD 95 SAP90A; ESTsMm 29308; alkaline phosphatase 2 liverMm 1265; Homo sapiens 12 seeders BAC RP11 19E18; ESTsMm 41269; ESTsMm 86724; Homo sapiens 12q13 1 PAC RPC11 228P16; serine threonine kinase receptor associated proteinMm 22584; UI M BZ0 axl a 11 0 UI s1 NIH BMAP MHI2; Mus musculus poly rC binding protein 2; IMAGE 4503171 5; ESTsMm 35430; activating transcription factor 4Mm 641; Mouse serine threonine phosphatase 2C; GAPDH control; Human mRNA for KIAA0299; ESTs Weakly similar to proline rich protein M musculus Mm 41665; megakaryocyte associated tyrosine kinaseMm 2918; homer neuronal immediate early gene 2Mm 228; peroxisomal farnesylated proteinMm 29198; blank; zinc finger protein 238Mm 27962; ESTs Highly similar to PHENYLALANYL TRNA SYNTHETASE BETA CHAIN CYTOPLASMIC Saccharomyces cerevisiae Mm 27403; Rat microtubule associated protein 2 MAP2; timeless homolog Drosophila Mm 6458; kinectin 1Mm 3110; phosphatidylinositol membrane associatedMm 1860; R norvegicus CDP diacylglycerol synthase; Homo sapiens DKFZp434A132; Mus musculus hematopoietic zinc finger; mitogen activated protein kinase kinase 7Mm 3906; H3110G03 3 NIA Mouse 15K cDNA; ESTs Highly similar to HYPOTHETICAL 47 9 KD PROTEIN B0303 3 IN CHROMOSOME III Caenorhabditis elegans Mm 30147; ESTs Highly similar to CELL GROWTH REGULATING NUCLEOLAR PROTEIN M musculus Mm 28560; no match W; Mouse endogenous murine leukemia virus polytropic provirus DNA; clone1110013A05; aryl hydrocarbon receptorMm 4452; peroxisome proliferator activated receptor alphaMm 1373; Mus musculus LAG protein Lag Rattus NMDA receptor glutamate

binding subunit; Mus musculus syntaxin binding protein 1; Mus musculus MAP kinase phosphatase 6; Rattus norvegicus retina specific protein PAL; no match33; Mus musculus myc box dependent interacting pro; Murine leukemia virus env1 envelope protein; cytochrome c oxidase subunit VIIa 3Mm 2151; proteasome prosome macropain subunit alpha type 3Mm 1007; Homo sapiens mRNA cDNA DKFZp434N1615; Mus musculus TCR beta locus; ESTs Weakly similar to LOK M musculus Mm 74661; small inducible cytokine subfamily A member 22Mm 12895; ESTsMm 23682; no match I; no match H; high mobility group protein I isoform CMm 3953; protein kinase cAMP dependent catalytic alphaMm 22479; Mus musculus phosphatidylinositol membrane associated; no match G; Mouse heparin binding epidermal growth factor like; Homo sapiens cDNA DKFZp586B0924; Mouse magnesium dependent protein; ESTs Weakly similar to ZW10 interactor Zwint H sapiens Mm 38994; ESTsMm 30480; H sapiens ADP ribosylation factor GTPase activating protein 1; Mus elongation of very long chain fatty acids; Mouse Y box binding protein 1 DNA binding MSY 1; Homo sapiens KIAA0249 gene product; Mus musculus Ran binding protein 2; Mus musculus histidine decarboxylase cluster; Homo sapiens cDNA FLJ21612 fis clone COL07355; UI M BH2 3 aqc g 10 0 UI 5; Rattus norvegicus APP binding protein 1; Mus musculus beta site APP cleaving enzyme; DNA methyltransferase cytosine 5 Mm 7814; no match66; ESTs Weakly similar to Lpi2p S cerevisiae Mm 21859; R norvegicus phosphatidylinositol synthase; ribonuclease L 2 5 oligoisoadenylate synthetase dependent inhibitorMm 5831; Mm 104074; H sapiens protein phosphatase 2A regulatory subunit B; H3147A11 5 NIA Mouse 15K cDNA Clone Set; Mus musculus Y box transcription factor; Mouse gene for basigin; Homo sapiens mRNA for FLJ00042 protein; R norvegicus nup155 nucleoporin 155kD; tubby like protein 1 Mm 42102; R norvegicus RNA binding protein SiahBP; UI M BZ0 axj h 06 0 UI 3; and Mus musculus pyruvate kinase 3, with a test compound;

determining expression of said one or more NM genes by hybridization of mRNA of said cells to a nucleic acid probe which is complementary to said mRNA; and

identifying a test compound as a candidate drug for treating neuronal cell death if it increases expression of said one or more NM genes.

46. The method of claim 45 wherein the cells are retinal cells.

47. The method of claim 45 wherein the cells are recombinant host cells which are transfected with an expression construct which encodes said one or more NMs.

48. A method to identify candidate drugs for treating neuronal cell death, comprising:

contacting cells which express one or more neuronal marker (NM) proteins selected from the group consisting of: Mus musculus retinal S antigen; Mus musculus neural retina leucine zipper gene; M musculus photoreceptor specific protein PSP G145; IMAGE 4507893 5; Mus musculus domesticus phosducin; IMAGE 4507284 5; Danio rerio brain type fatty acid binding protein; M musculus X linked juvenile retinoschisis protein; M musculus guanine nucleotide binding protein beta 1 Gnb1; Mus musculus TPA regulated locus; Mouse nuclear protein mdm 1; IMAGE 4511806 5; M musculus male germ cell associated kinase; heat shock protein 60 kDaMm 1777; no match17; NCI CGAP BC3 Mus musculus cDNA clone IMAGE 3976794; no homol6; Homo sapiens CGI 45 protein; ESTsMm 44103; Mouse opsin MOPS; IMAGE 4225062 5; Mm 100212; H sapiens fer fps fes related tyrosine kinase phosphoprotein NCP94 FER; IMAGE 4505626 5 602393946F1 NIH MGC 94; solute carrier family 12 member 2Mm 4168; Mus musculus BUB2 like protein 1 HBLP1 mRNA complete cdsMm 104771; hemoglobin Y beta like embryonic chainMm 35830; erythrocyte protein band 4 1Mm 30038; no match55; Mus musculus MYLE protein mRNA complete cdsMm 41091; RIKEN full length enriched adult male hypothalamus musculus cDNA clone A230050E13; NCI CGAP Mam6 Mus IMAGE 3500058; Mus musculus mRNA for GTP binding protein drg2 gene Mm 41803; Homo sapiens mRNA for KIAA1549 protein; Mus musculus karyopherin importin alpha 2 Kpna2; UI M BZ1 bk v b 01 0 UI 3; no match B; ESTsMm 939; Mus musculus cDNA sequence AF244542; IMAGE 1348390 5; solute carrier family 30 zinc transporter member 3Mm 1396; no match110; Mus musculus homeodomain protein crx; promininMm 6250; no homol3; IMAGE 1279184 5; Human microfibril associated glycoprotein 4; Mm 70462; no match A; Rattus sp mRNA for BHF 1; ribosomal protein S24Mm 16775; Stratagene mouse Tcell 937311 IMAGE 1002041; NCI CGAP Kid14 Mus IMAGE 4236354 5; R norvegicus retinoblastoma binding protein 9; Mus musculus exostoses multiple 1 Ext1; selectin endothelial cell ligandMm 488; ESTs Weakly similar to HYPOTHETICAL 16 1 KD PROTEIN IN SEC17 QCR1

INTERGENIC REGION *Saccharomyces cerevisiae* Mm 27114; ESTs Highly similar to KIAA0824 protein H sapiens Mm 34579; *Mus musculus* ribosomal protein L10A Rpl10a; *R. norvegicus* ribonucleoprotein F; clone 1110007F23; no match38; *M. musculus* Srp20 gene; homeodomain interacting protein kinase 2Mm 20934; FSHD region gene 1Mm 67; UI M BH3 ari c 10 0 UI s1 NIH BMAP M S4; Homo sapiens CED 6 protein CED 6; *Mus musculus* RIKEN clone 0610009E22; RAB18 member RAS oncogene familyMm 22660; no match5; *Mus musculus* prominin Prom; ribosomal protein L12Mm 70127; ESTs Highly similar to ELONGATION FACTOR 1 DELTA Homo sapiens Mm 21086; ESTs Highly similar to HYPOTHETICAL 37 2 KD PROTEIN C12C2 09C IN CHROMOSOME I *Schizosaccharomyces pombe* Mm 21383; clone 3021401C12; *M. musculus* very long chain acyl CoA dehydrogenase; vitronectinMm 3667; ESTs Weakly similar to LIV 1 protein H sapiens Mm 41214; *Mus musculus* dopamine receptor 4; no match7; ATPase H transporting lysosomal vacuolar proton pump noncatalytic accessory protein 1 110 160 kDa Mm 20869; *Rattus norvegicus* partial mRNA for CRM1 protein; eukaryotic translation elongation factor 1 alpha 1Mm 16317; Human karyopherin beta2 importin; ESTs Moderately similar to hypothetical protein H sapiens Mm 22878; Homo sapiens PAC clone RP4 687K1; UI M AO1 aeh e 11 0 UI r1 NIH BMAP MPG N; high mobility group protein 14Mm 2756; ESTsMm 31374; *R. norvegicus* aryl hydrocarbon interacting protein like 1; UI M CG0p bmu h 08 0 UI s1 NIH BMAP Ret4 S2; RAB10 member RAS oncogene familyMm 9455; *Mus musculus* early development regulator 2; no match83; *Mus musculus* topoisomerase DNA II beta; alpha tubulin; Homo sapiens MTA1 L1; retinitis pigmentosa GTPase regulator interacting protein 1 Mm 21662; *Mus musculus* FXYD domain containing ion transport regulator 5; *Mus musculus* cytochrome P450 3A25 CYP3A25 mRNA complete cdsMm 26993; IMAGE 4505626 5; RNA polymerase II transcriptional coactivatorMm 966; ESTs Highly similar to CAAX prenyl protease H sapiens Mm 34399; Soares mammary gland NbMMG IMAGE 1347586; clone 2700067D09; ESTs Weakly similar to define not available 5901802 *D. melanogaster* Mm 35127; torsin family 1 member AMm 29151; Mm 23086; *M. musculus* brain cyclic nucleotide gated K; *Mus musculus* N myc downstream regulated 1; Homo sapiens splicing factor 3b subunit 3; *Mus musculus* mRNA for Lim homeodomain protein Islet1Mm 42242; Mouse mRNA for syntaxin 3D 1; *Mus musculus* chromosome 7 clone 19K5; ES18 proteinMm 23296; ESTs Highly similar to KIAA0729 protein H sapiens Mm

13148; ESTsMm 33949; Rat transcription factor RZR beta gene; ESTs Moderately similar to hypothetical protein H sapiens Mm 30235; Homo sapiens KIAA0009 gene product; no match X; ESTs Moderately similar to MYOSIN LIGHT CHAIN KINASE Dictyostelium discoideum Mm 1881; serum glucocorticoid regulated kinaseMm 28405; ESTs Weakly similar to cappuccino D melanogaster Mm 41762; regulator of G protein signaling 9Mm 38548; ESTsMm 34351; ESTsMm 32460; Mm 44404; ESTsMm 37515; Mus musculus cytochrome P450 2f2 Cyp2f2; Finkel Biskis Reilly murine sarcoma virus FBR MuSV ubiquitously expressed fox derived Mm 4890; guanylate cyclase activator 1a retina Mm 16224; human CRX control; adducin 2 beta Mm 104155; mouse CRX control; NRL control; Mus musculus ELOVL4; Mus musculus N myc downstream regulated 3; lactate dehydrogenase 1 A chainMm 26504; ESTs Moderately similar to stromelysin PDGF responsive element binding protein transcription factor M musculus Mm 38372; ESTsMm 11285; M musculus chr 10 clone RP21 39C4; ESTs Highly similar to 40 KD PEPTIDYL PROLYL CIS TRANS ISOMERASE Homo sapiens Mm 30242; NIH BMAP Ret4 S2 Mus UI M CG0p big e 08 0 UI 3; Soares mammary gland NMLMG IMAGE 3467149; glycosylphosphatidylinositol 1 homolog human Mm 6354; Rattus norvegicus NMDA receptor subunit NR2; ESTsMm 33788; Mus musculus hexokinase 1 Hk1; inosine 5 phosphate dehydrogenase 2Mm 6065; N myc downstream regulated 3Mm 36775; no match V; villin 2Mm 4551; Rattus norvegicus TM6P1 TM6P1; Mus musculus mRNA for heterogeneous nuclear ribonucleoprotein HMm 21740; ESTsMm 103333; Mus musculus retinal taurine transporter; Mus musculus poly rC binding protein; ESTs Weakly similar to nuclear poly C binding protein M musculus Mm 29707; ESTs Weakly similar to similar to 1 acyl glycerol 3 phosphate acyltransferases C elegans Mm 24117; Mm 27013; pre B cell leukemia transcription factor 3Mm 7331; ESTsMm 21299; Mus musculus kinectin 1; Mus musculus drebrin A mRNA complete cdsMm 104044; H3087H01 5 NIA Mouse 15K cDNA Clone Set; SAC483 Mouse e14 5 developing pituitary gland; cloneE130113K08; Mus musculus major histocompatibility locus class II region Fas binding protein Daxx DAXX gene partial cds Bing1 BING1 tapasin tapasin RalGDS like factor RLF KE2 KE2 BING4 BING4 beta1 3 galactosyl transferase beta1 3 galactosylMm 20926; Mus musculus aquaporin 1; acyl Coenzyme A dehydrogenase very long chainMm 18630; Mouse proprotein convertase 4; M musculus activating transcription factor 4 Atf4; guanine nucleotide binding protein beta 5Mm 4702; phosducin control; ESTsMm 38578;

Barstead bowel MPLRB9 IMAGE 1095982; M musculus stromal cell derived factor recep; ESTs Weakly similar to E04F6 2 gene product C elegans Mm 18889; IMAGE 963149 5; syntaxin binding protein 1 Mm 3129; solute carrier family 16 monocarboxylic acid transporters member 1Mm 9086; ESTs Highly similar to TRICARBOXYLATE TRANSPORT PROTEIN PRECURSOR Rattus norvegicus Mm 22679; Bcl2 likeMm 3882; Soares mouse p3NMF19 5 IMAGE 493296; Mus musculus beta galactosidase complex; H sapiens ADP ribosylation factor binding protein GGA2; Mm 31266; IMAGE 560050 5; Mus musculus DXHXS6673E protein DXHXS6673E mRNA complete cdsMm 23458; M musculus mRNA for hair keratin mHb6; Mus musculus thyroglobulin; ESTs Moderately similar to KIAA0956 protein H sapiens Mm 11428; H3050H05 3 NIA Mouse 15K cDNA Clone Set; ESTs Moderately similar to signal recognition particle 54K protein M musculus Mm 32508; Mouse PSD 95 SAP90A; ESTsMm 29308; alkaline phosphatase 2 liverMm 1265; Homo sapiens 12 seeders BAC RP11 19E18; ESTsMm 41269; ESTsMm 86724; Homo sapiens 12q13 1 PAC RPCI1 228P16; serine threonine kinase receptor associated proteinMm 22584; UI M BZ0 axl a 11 0 UI s1 NIH BMAP MHI2; Mus musculus poly rC binding protein 2; IMAGE 4503171 5; ESTsMm 35430; activating transcription factor 4Mm 641; Mouse serine threonine phosphatase 2C; GAPDH control; Human mRNA for KIAA0299; ESTs Weakly similar to proline rich protein M musculus Mm 41665; megakaryocyte associated tyrosine kinaseMm 2918; homer neuronal immediate early gene 2Mm 228; peroxisomal farnesylated proteinMm 29198; blank; zinc finger protein 238Mm 27962; ESTs Highly similar to PHENYLALANYL TRNA SYNTHETASE BETA CHAIN CYTOPLASMIC Saccharomyces cerevisiae Mm 27403; Rat microtubule associated protein 2 MAP2; timeless homolog Drosophila Mm 6458; kinectin 1Mm 3110; phosphatidylinositol membrane associatedMm 1860; R norvegicus CDP diacylglycerol synthase; Homo sapiens DKFZp434A132; Mus musculus hematopoietic zinc finger; mitogen activated protein kinase kinase 7Mm 3906; H3110G03 3 NIA Mouse 15K cDNA; ESTs Highly similar to HYPOTHETICAL 47 9 KD PROTEIN B0303 3 IN CHROMOSOME III Caenorhabditis elegans Mm 30147; ESTs Highly similar to CELL GROWTH REGULATING NUCLEOLAR PROTEIN M musculus Mm 28560; no match W; Mouse endogenous murine leukemia virus polytropic provirus DNA; clone1110013A05; aryl hydrocarbon receptorMm 4452; peroxisome proliferator activated receptor alphaMm 1373; Mus musculus LAG protein Lag Rattus NMDA

receptor glutamate binding subunit; Mus musculus syntaxin binding protein 1; Mus musculus MAP kinase phosphatase 6; Rattus norvegicus retina specific protein PAL; no match33; Mus musculus myc box dependent interacting pro; Murine leukemia virus erv1 envelope protein; cytochrome c oxidase subunit VIIa 3Mm 2151; proteasome prosome macropain subunit alpha type 3Mm 1007; Homo sapiens mRNA cDNA DKFZp434N1615; Mus musculus TCR beta locus; ESTs Weakly similar to LOK M musculus Mm 74661; small inducible cytokine subfamily A member 22Mm 12895; ESTsMm 23682; no match I; no match H; high mobility group protein I isoform CMm 3953; protein kinase cAMP dependent catalytic alphaMm 22479; Mus musculus phosphatidylinositol membrane associated; no match G; Mouse heparin binding epidermal growth factor like; Homo sapiens cDNA DKFZp586B0924; Mouse magnesium dependent protein; ESTs Weakly similar to ZW10 interactor Zwint H sapiens Mm 38994; ESTsMm 30480; H sapiens ADP ribosylation factor GTPase activating protein 1; Mus elongation of very long chain fatty acids; Mouse Y box binding protein 1 DNA binding MSY 1; Homo sapiens KIAA0249 gene product; Mus musculus Ran binding protein 2; Mus musculus histidine decarboxylase cluster; Homo sapiens cDNA FLJ21612 fis clone COL07355; UI M BH2 3 aqc g 10 0 UI 5; Rattus norvegicus APP binding protein 1; Mus musculus beta site APP cleaving enzyme; DNA methyltransferase cytosine 5 Mm 7814; no match66; ESTs Weakly similar to Lpi2p S cerevisiae Mm 21859; R norvegicus phosphatidylinositol synthase; ribonuclease L 2 5 oligoisoadenylate synthetase dependent inhibitorMm 5831; Mm 104074; H sapiens protein phosphatase 2A regulatory subunit B; H3147A11 5 NIA Mouse 15K cDNA Clone Set; Mus musculus Y box transcription factor; Mouse gene for basigin; Homo sapiens mRNA for FLJ00042 protein; R norvegicus nup155 nucleoporin 155kD; tubby like protein 1 Mm 42102; R norvegicus RNA binding protein SiahBP; UI M BZ0 axj h 06 0 UI 3; and Mus musculus pyruvate kinase 3, with a test compound;

determining amount of said one or more NM proteins in said cells;

and

identifying a test compound as a candidate drug for treating neuronal cell death if it increases the amount of one more NM proteins in said cells.

49. The method of claim 48 wherein the cells are retinal cells.

50. The method of claim 48 wherein the cells are recombinant host cells which are transfected with an expression construct which encodes said one or more NMs.

51. A method to identify candidate drugs for treating neuronal cell death, comprising:

contacting cells which express one or more neuronal marker (NM) proteins selected from the group consisting of: Mus musculus retinal S antigen; Mus musculus neural retina leucine zipper gene; M musculus photoreceptor specific protein PSP G145; IMAGE 4507893 5; Mus musculus domesticus phosducin; IMAGE 4507284 5; Danio rerio brain type fatty acid binding protein; M musculus X linked juvenile retinoschisis protein; M musculus guanine nucleotide binding protein beta 1 Gnb1; Mus musculus TPA regulated locus; Mouse nuclear protein mdm 1; IMAGE 4511806 5; M musculus male germ cell associated kinase; heat shock protein 60 kDaMm 1777; no match17; NCI CGAP BC3 Mus musculus cDNA clone IMAGE 3976794; no homol6; Homo sapiens CGI 45 protein; ESTsMm 44103; Mouse opsin MOPS; IMAGE 4225062 5; Mm 100212; H sapiens fer fps fes related tyrosine kinase phosphoprotein NCP94 FER; IMAGE 4505626 5 602393946F1 NIH MGC 94; solute carrier family 12 member 2Mm 4168; Mus musculus BUB2 like protein 1 HBLP1 mRNA complete cdsMm 104771; hemoglobin Y beta like embryonic chainMm 35830; erythrocyte protein band 4 1Mm 30038; no match55; Mus musculus MYLE protein mRNA complete cdsMm 41091; RIKEN full length enriched adult male hypothalamus musculus cDNA clone A230050E13; NCI CGAP Mam6 Mus IMAGE 3500058; Mus musculus mRNA for GTP binding protein drg2 gene Mm 41803; Homo sapiens mRNA for KIAA1549 protein; Mus musculus karyopherin importin alpha 2 Kpna2; UI M BZ1 bk v b 01 0 UI 3; no match B; ESTsMm 939; Mus musculus cDNA sequence AF244542; IMAGE 1348390 5; solute carrier family 30 zinc transporter member 3Mm 1396; no match110; Mus musculus homeodomain protein crx; promininMm 6250; no homol3; IMAGE 1279184 5; Human microfibril associated glycoprotein 4; Mm 70462; no match A; Rattus sp mRNA for BHF 1; ribosomal protein S24Mm 16775; Stratagene mouse Tcell 937311 IMAGE 1002041; NCI CGAP Kid14 Mus IMAGE 4236354 5; R norvegicus retinoblastoma binding protein 9; Mus musculus exostoses multiple 1 Ext1; selectin endothelial cell ligandMm 488; ESTs Weakly similar to HYPOTHETICAL 16 1 KD PROTEIN IN SEC17 QCR1 INTERGENIC REGION Saccharomyces cerevisiae Mm 27114; ESTs Highly similar to KIAA0824 protein H sapiens Mm 34579; Mus musculus ribospsmal protein L10A Rpl10a; R

norvegicus ribonucleoprotein F; clone 1110007F23; no match38; M musculus Srp20 gene; homeodomain interacting protein kinase 2Mm 20934; FSHD region gene 1Mm 67; UI M BH3 ari c 10 0 UI s1 NIH BMAP M S4; Homo sapiens CED 6 protein CED 6; Mus musculus RIKEN clone 0610009E22; RAB18 member RAS oncogene familyMm 22660; no match5; Mus musculus prominin Prom; ribosomal protein L12Mm 70127; ESTs Highly similar to ELONGATION FACTOR 1 DELTA Homo sapiens Mm 21086; ESTs Highly similar to HYPOTHETICAL 37 2 KD PROTEIN C12C2 09C IN CHROMOSOME I Schizosaccharomyces pombe Mm 21383; clone 3021401C12; M musculus very long chain acyl CoA dehydrogenase; vitronectinMm 3667; ESTs Weakly similar to LIV 1 protein H sapiens Mm 41214; Mus musculus dopamine receptor 4; no match7; ATPase H transporting lysosomal vacuolar proton pump noncatalytic accessory protein 1 110 160 kDa Mm 20869; Rattus norvegicus partial mRNA for CRM1 protein; eukaryotic translation elongation factor 1 alpha 1Mm 16317; Human karyopherin beta2 importin; ESTs Moderately similar to hypothetical protein H sapiens Mm 22878; Homo sapiens PAC clone RP4 687K1; UI M AO1 aeh e 11 0 UI r1 NIH BMAP MPG N; high mobility group protein 14Mm 2756; ESTsMm 31374; R norvegicus aryl hydrocarbon interacting protein like 1; UI M CG0p bmu h 08 0 UI s1 NIH BMAP Ret4 S2; RAB10 member RAS oncogene familyMm 9455; Mus musculus early development regulator 2; no match83; Mus musculus topoisomerase DNA II beta; alpha tubulin; Homo sapiens MTA1 L1; retinitis pigmentosa GTPase regulator interacting protein 1 Mm 21662; Mus musculus FXYD domain containing ion transport regulator 5; Mus musculus cytochrome P450 3A25 CYP3A25 mRNA complete cdsMm 26993; IMAGE 4505626 5; RNA polymerase II transcriptional coactivatorMm 966; ESTs Highly similar to CAAX prenyl protease H sapiens Mm 34399; Soares mammary gland NbMMG IMAGE 1347586; clone 2700067D09; ESTs Weakly similar to defline not available 5901802 D melanogaster Mm 35127; torsin family 1 member AMm 29151; Mm 23086; M musculus brain cyclic nucleotide gated K; Mus musculus N myc downstream regulated 1; Homo sapiens splicing factor 3b subunit 3; Mus musculus mRNA for Lim homeodomain protein Islet1Mm 42242; Mouse mRNA for syntaxin 3D 1; Mus musculus chromosome 7 clone 19K5; ES18 proteinMm 23296; ESTs Highly similar to KIAA0729 protein H sapiens Mm 13148; ESTsMm 33949; Rat transcription factor RZR beta gene; ESTs Moderately similar to hypothetical protein H sapiens Mm 30235; Homo sapiens KIAA0009 gene product; no match X;

ESTs Moderately similar to MYOSIN LIGHT CHAIN KINASE Dictyostelium discoideum Mm 1881; serum glucocorticoid regulated kinase Mm 28405; ESTs Weakly similar to cappuccino D melanogaster Mm 41762; regulator of G protein signaling 9Mm 38548; ESTsMm 34351; ESTsMm 32460; Mm 44404; ESTsMm 37515; Mus musculus cytochrome P450 2f2 Cyp2f2; Finkel Biskis Reilly murine sarcoma virus FBR MuSV ubiquitously expressed fox derived Mm 4890; guanylate cyclase activator 1a retina Mm 16224; human CRX control; adducin 2 beta Mm 104155; mouse CRX control; NRL control; Mus musculus ELOVL4; Mus musculus N myc downstream regulated 3; lactate dehydrogenase 1 A chain Mm 26504; ESTs Moderately similar to stromelysin PDGF responsive element binding protein transcription factor M musculus Mm 38372; ESTsMm 11285; M musculus chr 10 clone RP21 39C4; ESTs Highly similar to 40 KD PEPTIDYL PROLYL CIS TRANS ISOMERASE Homo sapiens Mm 30242; NIH BMAP Ret4 S2 Mus UI M CG0p big e 08 0 UI 3; Soares mammary gland NMLMG IMAGE 3467149; glycosylphosphatidylinositol 1 homolog human Mm 6354; Rattus norvegicus NMDA receptor subunit NR2; ESTsMm 33788; Mus musculus hexokinase 1 Hk1; inosine 5 phosphate dehydrogenase 2Mm 6065; N myc downstream regulated 3Mm 36775; no match V; villin 2Mm 4551; Rattus norvegicus TM6P1 TM6P1; Mus musculus mRNA for heterogeneous nuclear ribonucleoprotein HMm 21740; ESTsMm 103333; Mus musculus retinal taurine transporter; Mus musculus poly rC binding protein; ESTs Weakly similar to nuclear poly C binding protein M musculus Mm 29707; ESTs Weakly similar to similar to 1 acyl glycerol 3 phosphate acyltransferases C elegans Mm 24117; Mm 27013; pre B cell leukemia transcription factor 3Mm 7331; ESTsMm 21299; Mus musculus kinectin 1; Mus musculus drebrin A mRNA complete cdsMm 104044; H3087H01 5 NIA Mouse 15K cDNA Clone Set; SAC483 Mouse e14 5 developing pituitary gland; cloneE130113K08; Mus musculus major histocompatibility locus class II region Fas binding protein Daxx DAXX gene partial cds Bing1 BING1 tapasin tapasin RalGDS like factor RLF KE2 KE2 BING4 BING4 beta1 3 galactosyl transferase beta1 3 galactosylMm 20926; Mus musculus aquaporin 1; acyl Coenzyme A dehydrogenase very long chainMm 18630; Mouse proprotein convertase 4; M musculus activating transcription factor 4 Atf4; guanine nucleotide binding protein beta 5Mm 4702; phosducin control; ESTsMm 38578; Barstead bowel MPLRB9 IMAGE 1095982; M musculus stromal cell derived factor recep; ESTs Weakly similar to E04F6 2 gene product C elegans Mm 18889; IMAGE 963149 5;

syntaxin binding protein 1 Mm 3129; solute carrier family 16 monocarboxylic acid transporters member 1Mm 9086; ESTs Highly similar to TRICARBOXYLATE TRANSPORT PROTEIN PRECURSOR Rattus norvegicus Mm 22679; Bcl2 likeMm 3882; Soares mouse p3NMF19 5 IMAGE 493296; Mus musculus beta galactosidase complex; H sapiens ADP ribosylation factor binding protein GGA2; Mm 31266; IMAGE 560050 5; Mus musculus DXHXS6673E protein DXHXS6673E mRNA complete cdsMm 23458; M musculus mRNA for hair keratin mHb6; Mus musculus thyroglobulin; ESTs Moderately similar to KIAA0956 protein H sapiens Mm 11428; H3050H05 3 NIA Mouse 15K cDNA Clone Set; ESTs Moderately similar to signal recognition particle 54K protein M musculus Mm 32508; Mouse PSD 95 SAP90A; ESTsMm 29308; alkaline phosphatase 2 liverMm 1265; Homo sapiens 12 seeders BAC RP11 19E18; ESTsMm 41269; ESTsMm 86724; Homo sapiens 12q13 1 PAC RPC11 228P16; serine threonine kinase receptor associated proteinMm 22584; UI M BZ0 axl a 11 0 UI s1 NIH BMAP MHI2; Mus musculus poly rC binding protein 2; IMAGE 4503171 5; ESTsMm 35430; activating transcription factor 4Mm 641; Mouse serine threonine phosphatase 2C; GAPDH control; Human mRNA for KIAA0299; ESTs Weakly similar to proline rich protein M musculus Mm 41665; megakaryocyte associated tyrosine kinaseMm 2918; homer neuronal immediate early gene 2Mm 228; peroxisomal farnesylated proteinMm 29198; blank; zinc finger protein 238Mm 27962; ESTs Highly similar to PHENYLALANYL TRNA SYNTHETASE BETA CHAIN CYTOPLASMIC Saccharomyces cerevisiae Mm 27403; Rat microtubule associated protein 2 MAP2; timeless homolog Drosophila Mm 6458; kinectin 1Mm 3110; phosphatidylinositol membrane associatedMm 1860; R norvegicus CDP diacylglycerol synthase; Homo sapiens DKFZp434A132; Mus musculus hematopoietic zinc finger; mitogen activated protein kinase kinase 7Mm 3906; H3110G03 3 NIA Mouse 15K cDNA; ESTs Highly similar to HYPOTHETICAL 47 9 KD PROTEIN B0303 3 IN CHROMOSOME III Caenorhabditis elegans Mm 30147; ESTs Highly similar to CELL GROWTH REGULATING NUCLEOLAR PROTEIN M musculus Mm 28560; no match W; Mouse endogenous murine leukemia virus polytropic provirus DNA; clone1110013A05; aryl hydrocarbon receptorMm 4452; peroxisome proliferator activated receptor alphaMm 1373; Mus musculus LAG protein Lag Rattus NMDA receptor glutamate binding subunit; Mus musculus syntaxin binding protein 1; Mus musculus MAP kinase phosphatase 6; Rattus norvegicus retina specific protein PAL; no match33; Mus

musculus myc box dependent interacting pro; Murine leukemia virus env1 envelope protein; cytochrome c oxidase subunit VIIa 3Mm 2151; proteasome prosome macropain subunit alpha type 3Mm 1007; Homo sapiens mRNA cDNA DKFZp434N1615; Mus musculus TCR beta locus; ESTs Weakly similar to LOK M musculus Mm 74661; small inducible cytokine subfamily A member 22Mm 12895; ESTsMm 23682; no match I; no match H; high mobility group protein I isoform CMm 3953; protein kinase cAMP dependent catalytic alphaMm 22479; Mus musculus phosphatidylinositol membrane associated; no match G; Mouse heparin binding epidermal growth factor like; Homo sapiens cDNA DKFZp586B0924; Mouse magnesium dependent protein; ESTs Weakly similar to ZW10 interactor Zwint H sapiens Mm 38994; ESTsMm 30480; H sapiens ADP ribosylation factor GTPase activating protein 1; Mus elongation of very long chain fatty acids; Mouse Y box binding protein 1 DNA binding MSY 1; Homo sapiens KIAA0249 gene product; Mus musculus Ran binding protein 2; Mus musculus histidine decarboxylase cluster; Homo sapiens cDNA FLJ21612 fis clone COL07355; UI M BH2 3 aqc g 10 0 UI 5; Rattus norvegicus APP binding protein 1; Mus musculus beta site APP cleaving enzyme; DNA methyltransferase cytosine 5 Mm 7814; no match66; ESTs Weakly similar to Lpi2p S cerevisiae Mm 21859; R norvegicus phosphatidylinositol synthase; ribonuclease L 2 5 oligoisoadenylate synthetase dependent inhibitorMm 5831; Mm 104074; H sapiens protein phosphatase 2A regulatory subunit B; H3147A11 5 NIA Mouse 15K cDNA Clone Set; Mus musculus Y box transcription factor; Mouse gene for basigin; Homo sapiens mRNA for FLJ00042 protein; R norvegicus nup155 nucleoporin 155kD; tubby like protein 1 Mm 42102; R norvegicus RNA binding protein SiahBP; UI M BZ0 axj h 06 0 UI 3; and Mus musculus pyruvate kinase 3, with a test compound;

determining activity of said one or more NM proteins in said cells;

and

identifying a test compound as a candidate drug for treating neuronal cell death if it increases the activity of one more NM proteins in said cells.

52. The method of claim 51 wherein the cells are retinal cells.

53. The method of claim 51 wherein the cells are recombinant host cells which are transfected with an expression construct which encodes said one or more NMs.